The Pre-Columbian Hypothesis

The Pre-Columbian Hypothesis states that treponemal disease, which includes syphilis, existed before 1492---but was confused diagnostically with other illnesses, particularly leprosy.
It was around 3000 BCE, with cultural changes in the Middle East, that promoted the emergence of venereal syphilis, the newest treponemal form. It was reasoned that syphilis first appeared in the context of early city life: “Denser settlement, more clothing, and increased sexual laxity as well as decreasing endemic syphilis might well have assisted climatic change in the selection of mutants towards venereal syphilis treponemes” (Hackett 1963: 29).
The Columbus Exchange
The Columbian Hypothesis

- The reason why there was a strong motive to blame the New World for the new disease is because a supposed cure was located in the New World.

- The Columbia Hypothesis (named for its alleged protagonist) had its origin in the treatises of Oviedo, de Isla, and las Casas and other 16th-century accounts (Baker and Armelagos 1988; Crosby 1972; Dennie 1962; Desowitz 1997; Goff 1967; Harrison 1959; Pusey 1933; Williams, Rice, and Lacayo 1927; Williams 1932, 1936). The historian Alfred Cosby (1972) and others (Munger 1949; Quétel 1990; Steinbock 1976: 87) have pointed out an important financial aspect of the 16th-century acceptance of this explanation: the lucrative trade in guiac wood (ironwood) from the West Indies, imported as a treatment for syphilis to replace the mercurial ointments, pills, and fumigations derived from Arabic remedies for leprosy brought back to Europe by the Crusaders. It was alleged the Native American inhabitants of Hispaniola created guiacum, a decoction of guiac wood, to treat their “age-old” version of the disease.
Syphilis' Attack Stages

The organisms spread to various organs causing lesions or gummas.

Liver → Brain → Bone → Heart
Treponematosi is a delicate pathogen, and as a result has rather precise humidity and temperature requirements. It cannot stand more than a few moments of exposure to air, nor temperatures in excess of 104 °Fahrenheit.
Several decades after the initial outbreak, the idea was advanced by three authors that this new disease came from the New World and was brought into Europe in 1493 by members of Columbus’ first expedition. “This malady (the bubas) comes from the Indies, where it is very common among the Indians, but not so dangerous in those lands as it is in our own. The first time this sickness was seen in Spain was after Admiral Don Christopher Columbus had discovered the Indies and returned from those lands” (Oviedo 1526, in Quétel 1990: 35).

Regional, Social, and Evolutionary Perspectives on Treponemal Infection in the Southeastern US

Syphilis’ origin and geog-distribution have long been regarded as among the most important medical riddles of prehistoric and historic disease evolution.
A new disease appeared with frightening prevalence in the Old World shortly after Columbus’ return in the late 15th century from his initial venture into the New World. In retrospect (Baker and Armelagos, 1988), its common-place modern counterpart of primary or first-stage syphilis is much less virulent than in its years of its first appearance: the “English Pox”, the “Great Poxe”, the “Serpentine Disease”.
One form of Treponememia only affects soft tissues of nasal passages.
Another form of Treponemaelia is expressed in skin lesions & only pass by skin contact.
Of the four treponemal syndromes, venereal syphilis is by far the most dangerous, because its ravages are not restricted to just the skin, mucosal tissues, or the skeletal system. “It is a complex systemic illness with protean clinical manifestations caused by the spirochete Treponema pallidum subsp. Pallidum. It holds a special place in the history of medicine as the ‘great imitator’ or the ‘great imposter’. It is most often transmitted by sexual contact, and unlike most other infectious diseases, it is rarely diagnosed by isolation and characterization of the causative organism” (Tramont 1990: 1794)
Another Example of Skin-Expressed Treponememia
• Pustules appeared first on the genitals, spread over the entire body, and was followed by skin and bone ulcerations. When Charles VIII’s mercenaries were demobilized and returned to their homes in the summer of 1495, the disease returned home with them and within five years was reported in all parts of western Europe.
The third expression of Treponemia only affects long bones of the leg
Erosion of Bone By Spirochete Attack
• Yaws may have extreme skeletal changes, and considerable cortical thickening and bony expansions are often exhibited in postcranial elements, lytic defects within the cortex commonly combined with them. The most notable lesion is a tibia deformity known as “boomerang leg” or “saber tibia” (Hackett, 1951, 1976).
Reformation of Destroyed Bone Mater During Remission Period
Cecil Hackett proposed a “four syndromes” evolutionary tree in which natural and artificial (cultural) forces affected mutations within current treponemal species, producing successive forms of the disease. Mutations that aided pathogen transfer in new ecological/cultural environments resulted in the disease having a new form better adapted for propagation. Hackett theorized pinta was the original form in Africa, Asia, and America during the Pleistocene. Yaws arose in the humid tropical and subtropical regions of the Old World from a subsequent mutation around 10,000 BCE, but it did not spread to the Western Hemisphere at the time. The dry-region syndrome, endemic syphilis, was encouraged by climatic changes around 7000 BCE in arid areas of Africa, Asia, and Australia.
Advanced Stages of Skin Lesions With Expression of Pustules
Treponima can also be expressed in deformation of hands, which is similar to leprosy.
Last form of Teponemia is transferred through the placenta by the mother.
Congenital syphilis (involving secondary or tertiary syphilis) is transmitted through the placenta from the mother to the fetus through hematogenous dissemination (dissemination through the blood stream) (Aufderheide and Rodríguez-Martín, 1998: 164).
Only *Treponemias pallidum* is sexually-transmitted in first stage in the genital area
The canker sore disappears after first stage, providing a false security
Very Advanced Stage of Tissue Deterioration
• “It is most often transmitted by sexual contact, and unlike most other infectious diseases, it is rarely diagnosed by isolation and characterization of the causative organism” (Tramont 1990: 1794).
The area of initial contact manifests the first expression of infection.
• Seven North Carolina ossuaries dating to the Woodland period (circa 800 CE – Contact Period) contain the remains of Coastal Plain Native Americans which possess evidence for treponemal disease observed in the skeletal samples.
The sexually-transmitted form is more dangerous as it attacks & is the only one that is expressed in cranial deformation.
After cranial intrusion, spirochete directly intrudes into brain mater, causing insanity & a very slow death.
Late Stage of Cranial Intrusion of *Treponemia pallidum*
Cranial Expression of Syphilis
Global Syphilis Affliction, 1999

Estimated new cases of syphilis among adults, 1999

- North America: 100,000
- Western Europe: 140,000
- Eastern Europe & Central Asia: 100,000
- East Asia & Pacific: 240,000
- North Africa & the Middle East: 370,000
- Sub-Saharan Africa: 4 million
- Latin America & The Caribbean: 3 million
- South & Southeast Asia: 4 million
- Australia & New Zealand: 10,000

Global total = 12 million
Ode to Treponemia

Note: Verses 2 and 4 have been removed

- Untreated syphilis’ ravages are vividly depicted in a doggerel piece popular with medical students in the pre-penicillin 1920s:

There was a young man from Back Bay
Who thought syphilis just went away.
He believed that a chancre
Was only a canker
That healed in a week and a day.

There’s more to his terrible plight;
His pupils won’t close in the light;
His heart is cavorting,
His wife is aborting,
And he squints through his gun-barrel sight.

He’s been treated in every known way
But his spirochetes grow day by day;
He’s developed paresis,
Has long talks with Jesus,
And thinks he’s the Queen of the May.

Anonymous (Tramont 1990: 1794-95)
Syphilis (Treponemiasis) Spirochete

- There is no visual distinction between any of the four syndromes. They are all identical in appearance.
Sassafras, Syphilis, and the Land of Bad People

• Giovanni da Verrazzano, a Florentine, was commissioned by the French king Francis to explore the new world in 1524. Verrazzano made landfall near Cape Fear in the Carolinas and eventually sailed north to the coast of Maine which he called The Land of Bad People. Seventy-eight years later another explorer, Bartholomew Gosnold, sailed south from Nova Scotia to the Land of Bad People looking for a cure for syphilis. He was under the misapprehension that sassafras was that cure.

• According to the History and Epidemiology of Syphilis, the disease had been recently introduced to Europe and everyone was to blame. The English called it the French disease. The French called it the Spanish disease. Ironically, it appears to have been the American disease, first contracted by Columbus’ crew from Caribbean islanders.
Even though it had no effect on syphilis, the root of sassafras made a passable drink later called root beer—a passable soft drink but not much of a beer. It has an alcohol content of only 0.4% by volume. Understandably, it was most popular during prohibition. Sassafras is also street slang for marijuana but so is almost everything.

“Sassafras, Syphilis, and the Land of Bad People” is a good start to tell our story of the history of treating syphilis.
Nees, Sassafras
(Sassafras albidum Nutt.)
• Other Species---The name is also applied to the following:

• **BLACK SASSAFRAS**, or *Oliveri cortex* (Oliver's Bark), a substitute for cinnamon in Australia.

• **SWAMP SASSAFRAS**, or *Magnolia glauca*, an aromatic, diaphoretic, tonic bitter.

• **AUSTRALIAN SASSAFRAS**, or *Atherosperma moschatum*, a powerful poison, useful in rheumatism, syphilis and bronchitis.

• **SASSAFRAS GOESIANUM**, or *Massoja aromatica*, yielding Massoi Bark.

• **CALIFORNIA SASSAFRAS**, or *Umbellularia californica*, the leaves of which are employed in headache, colic and diarrhoea.
Nees, Sassafras
(Sassafras albidum Nutt.)


• **Parts Used**—Bark-root and the root, pith.

• **Habitat**—Eastern United States, from Canada to Florida, and Mexico.

• **Description**—The name 'Sassafras,' applied by the Spanish botanist Monardes in the sixteenth century, is said to be a corruption of the Spanish word for saxifrage. The tree stands from 20 to 40 feet high, with many slender branches, and smooth, orange-brown bark. The leaves are broadly oval, alternate, and 3 to 7 inches long. The flowers are small, and of an inconspicuous, greenish-yellow color. The roots are large and woody, their bark being soft and spongy, rough, and reddish or grayish-brown in color.
Description continued--- The living bark is nearly white, but exposure causes its immediate discoloration. The roots are imported in large, branched pieces, which may or may not be covered with bark, and often have attached to them a portion of the lower part of the trunk. The central market for all parts is Baltimore. The entire root is official in the British Pharmacopoeia, but only the more active bark in the United States, where wood and bark form separate articles of commerce. The bark without its corky layer is brittle, and the presence of small crystals cause its inner surface to glisten. Both bark and wood have a fragrant odor, and an aromatic, somewhat astringent taste.
The tree, which has berries like those of cinnamon, appears to have been cultivated in England some centuries ago, for in 1633 Johnston wrote: 'I have given the figure of a branch taken from a little sassafras tree which grew in the garden of Mr. Wilmot at Bon.' Probably it was discovered by the Spaniards in Florida, for seventy years earlier there is mention of the reputation of its roots in Spain as a cure for syphilis, rheumatism, etc., though its efficacy has since then been much disputed.

Constituents---The root-bark contains a heavy and a light volatile oil, camphorous matter, resin, wax a decomposition product of tannic acid called Sassafrid, tannic acid, gum, albumen, starch, lignin and salts. Sassafrid bears some analogy to cinchonic red. The bark yields from 6 to 9 per cent of oil, of which the chief constituent is Safrol (80 per cent). It is one of the heaviest of the volatile oils, and when cold deposits four- or six-sided prisms of Sassafras camphor, which retain the odor. It should be preserved in well-stopped, amber-colored bottles, away from the light. Three bushels of the root yield about 1 lb.
• Poison and Antidotes---The oil can produce marked narcotic poisoning, and death by causing widespread fatty degeneration of the heart, liver, and kidneys, or, in a larger dose, by great depression of the circulation, followed by a centric paralysis of respiration.
Other Alleged Herbal Cures for Syphilis

Plantain: Use as a tea and an external application.

Poke Root: Use the liniment or the infusion as a wash, and drink internally.

Burdock Root; Drink the decoction regularly

Sassafras: Drink an infusion of equal parts sassafras and sarsaparillas (Smilax ornata) and 1/2 part Guaiacum officinale.

Sumac berries, sumac bark, white pine bark and slippery elm bark.

Mandrake root, poke root, yellow dock, sassafras, blue flag, elder flowers and caraway seeds.

Mucilage of comfrey, burdock root and distilled water.

Pine: The Pine needles were used as an herbal aid for syphilis by the Zunis. The patient chewed the needles, swallowed them, drank a quantity of cold water.

Prickly Ash: Because it is an excellent alterative the herb has long been applied in constitutional syphilis and scrofula, being considered as good a herbal aid for the former as other specifics.
True Sarsaparilla: True Sarsaparilla was discovered by the early Spanish settlers in Jamaica, Perus, St. Domingo and Brazil in the middle of the sixteenth century. It was introduced into Seville about 1536 from "New Spain".

Stillingia: The herb is used in all the various forms of primary and secondary syphilitic affections in which it appears to have a most definite effect for healing.

Burdock: (Arctium Lappa). The following formula, a decoction, is helpful for syphilis, scrofula, skin diseases, furunculosis, tumors, abscesses, acne, and a general cachectic condition of the system.

Put 4 ounces of the dried cut herb into three pints of distilled water. Soak four hours or more and then simmer 30 minutes slowly. Strain, cool and keep in a cool place.

Dose for adults. A wineglassful (2 oz) 3 or 4 times a day. For children, less according to age.

Gotu Kola: The plant portion above the ground contains a large amount of Vellarin which is a substance that fights infections diseases like leprosy, syphilis, and eczema. Care is taken to dry this herb in the shade to preserve this valuable substance.

Barberry: Barberry is also used for specific ailments, notably syphilis.

Cloves: Another combination, containing Cloves, sandalwood paste, and saffron is said to help in syphilitic affections as an alterative and tonic.

Echinacea: Many people have observed its good effects in cases of syphilis.
The use of sassafras tree oil in the production of the drug Ecstasy is a rising concern for authorities. Cambodia has become an exporter of the oil of the sassafras tree, which is used in the manufacture of the drug Extacy. Sassafras oil mainly comes from the three provinces of Koh Kong, Pursat and Battambang, said Luar Ramin, secretary-general of the National Authority for Combating Drugs, at a recent conference. The sassafras tree, especially Cambodia's mountain variety, produces an oil high in the chemical safrole, which is in turn used to produce the head-shaking, euphoric drug. "According to the report of Vietnam, submitted through [the UN drug control office], between 2003 and 2005, the tree oil has been shipped in the hundreds of tons, through Vietnam for the international market," Luar Ramin said. "When Vietnam stopped buying it, the tree oil was exported through Thailand, and they seized 50 tons of it. This is a critical sign of worry." Cambodia's forestry law prohibits the harvest or transport of sassafras oil, which is classified as a top-tier controlled substance. Eng Chhunthan, a rights worker for Licadho based in Pursat, said he has received verbal reports that the cultivation of the oil continues in forests far from provincial centers.
CAMBODIA:
Ecstasy tabs destroying forest wilderness
Distribution of Sassafras in the US
Sassafras Leaves

Sassafras Tree

Sassafras Berries
Leaf Characteristics---broad, flat simple palmately lobed, lobes sometimes unbalanced notches in between lobes. U-shaped smooth Sassafras Sassafras albidium.

Although generally considered to be a small tree, the Sassafras sometimes reaches substantial height. The tallest specimen known in Ohio today, in Montgomery County, is 90 feet tall and has a diameter of almost 3.5 feet. The unusual leaves can be found in 3 forms, often on the same tree: 3-lobed; 2-lobed with a large central lobe and 1 smaller, side lobe; and without lobes. The tree grows in poorer soils than many other trees, and often is found in abandoned fields, along roadsides and fencerows, and on open slopes. It is widely distributed throughout Ohio, although less frequently in the northern and western parts of the state. The wood while soft, weak, and brittle is durable. It has been used for furniture as well as posts. Since the days of early settlement of the Ohio Country, Sassafras has been better known for the tea that is made by boiling the bark of its roots. Also, oil of Sassafras, which is distilled from roots and root bark, has been used in a variety of ways, including the flavoring of candies and medicines, and to perfume soaps and rubbing lotions. A variety of birds and a few mammals feed on the fruit.
Lignum vitae, Guaiacum officinale
The wood was originally taken to Europe as a much-needed cure for gout and syphilis. The treatment for syphilis achieved great if misplaced acclaim during the 16th century. It involved giving massive doses of the resinogenen by boiling the wood to patients who were wrapped in tight, head-to-toe plasters and confined to very hot rooms for a month. During this time they received little food, but in addition to the resin, they were fed large doses of mercury. Many died from this treatment; few, if any, were cured of syphilis.
• The trees name, lignum vitae, meaning "wood of life", probably derives from the tree's medicinal properties. Christopher Columbus found lignum vitae, or guaiacum, upon his arrival to the New World. Europeans perceived lignum vitae as a miracle cure for syphilis and hung pieces of the trees bark in churches as objects of devotion. The trees wood is so rich with fat and resins that objects made from it are self-lubricating and nearly impervious to water.

• Native Americans used lignum vitae to treat tropical diseases. From the mid- to late 16th century in Europe, the bark became popular as a treatment for syphilis. It is a traditional British treatment for rheumatoid arthritis and gout. In folk medicine, people used guaiac resin to treat respiratory problems and skin disorders. A derivative has been used in cough medicines. Lignum vitae also has served as an anti-inflammatory, a local anesthetic, and a help for herpes. Lignum vitae is subject to legal restrictions in some countries.
• There is even the story of how Columbus took the venereal disease syphilis back to Europe and the *Lignum vitae* tree was taken back to prepare a brew to cure the disease. It is said that if prepared correctly, it will arrest the symptoms for a short time, but is not a cure.

• The widely-accepted date for the introduction of the wood to Europe is 1508. It quickly became the treatment of choice for syphilis —“pox” of course was the plural of pock, as in pockwood (and pock-mark), and syphilis was already known as the French disease, hence the french-wood. The anti-syphilitic properties of *Lignum vitae* were heavily promoted.
The use of guaiacum for syphilis waned over the next century, gradually replaced by mercury as the drug of choice. Despite the impossibly dire side effects, mercury remained common in syphilis treatment until the 20th century, while Lignum vitae gradually sank into obscurity in the pharmacopoeia, although still employed in combination with other woods and roots as late as 1855.
Lignum vitae Tree
Engraving of Mercury Treatment Process for Syphilis
Mercury was the earliest chemical treatments for syphilis. Ore cinnabar, a form of mercury, had been used in the 1300's for the treatment of various skin diseases including leprosy. The application of the ointment to syphilitic lesions was an obvious choice. Giorgio Sommariva of Verona was the first person on record to use mercury to treat syphilis in 1496. Jacopo Berengario de Carpi became famous in Italy soon after this first treatment, for successfully administering mercury to syphilitic patients. Mercury was used in the form of ointments, oral administration, and vapor baths. Such treatments remained popular for three centuries. In the 1800s, mercury was used so liberally to nearly any ulcer found, that many patients were more injured from the treatment than from their ailment.
Tooth With Mercury Poisoning
• The phrase ‘silver bullet’ was used to describe the way these new treatments worked to use chemicals to destroy pathogens. The use of Salvarson to treat syphilis was one landmark in the beginning of modern medicine. While the ‘silver bullet’ wasn’t as miraculous as many had hoped, it inspired other researchers to continue the search. Even today the attitude of searching for a ‘silver’ or ‘magic’ bullet to treat illnesses pushes research forward.
Late Stages of Mercury Poisoning
In 1905, an important discovery was made. Microbiologists Schmudinn and Hoffman discovered and isolated the bacteria that causes syphilis. With the enemy now in sight, Paul Ehrlich began his research to find a better drug to fight the disease in 1908. He knew arsenic was one of the treatments of choice since syphilis was first documented, so he tried hundreds of different arsenic compounds out on laboratory rats. He worked in a laboratory filled with syphilitic rats trying compound after compound. Finally, the 606th compound he tried was successful. Number 606, as he temporarily called it, effectively destroyed the syphilis without destroying the rat. He was so enthusiastic about his results that he called the compound Salvarsan, which means ‘I save’. In 1910, he introduced this arsenic compound that could be used against syphilis. This last stage of research brought Syphilitic cures into the twentieth century with the advent of penicillin, and a cure that finally worked.
The final stage has begun