Week 04 Lecture 02
The Native American Healer

Weatherford chapters 10 and 11
Pages 175 – 216
Second edition pages 224–278
The Native American Healer

The learning objectives for week 04 are:

– to understand the nature of North American Indian agro-forestry
– to appreciate how modern science is making use of Native American farming practices
– to appreciate how modern science is making use of Native American land management practices
– to understand and appreciate some of the most important medical contributions of Native Americans to the world (Week 04 lecture 02)
– to sample speculations about the current and future potential of Native American indigenous knowledge of the medicinal value of plants
The Native American Healer

Terms you should know for week 04 are:

- back fire
- conoco
- polyculture
- the three sisters
- quinine
- curare
- ipecac
Native American Forestry Management and Agricultural Technology

Week 04 Part 02 Sources:


1. Quinine

- From bark of cinchona tree
- Known in Andes for many centuries
1. Quinine

- Quechua word “quina” means “bark.”
- Known in Andes as “quina quina,” bark of barks”
- Tree became known to Europeans as “fever tree”
- Concoctions later known as “Jesuit powder”
1. Quinine

• Make a tea from it or chew it
  – cures malaria;
  – lowers fevers;
  – helps with cramps and chills; and
  – fixes heart-rhythm disorders
1. Quinine also –

- Kills germs
- Stimulates digestion
- Reduces spasms
- Relieves pain
- Kills fungi
1. **Quinine**

- Name “cinchona” from a Spanish noblewoman who probably never took quinine
- Jesuits brought to Europe – they often took native peoples’ ideas seriously
- Knowledge lost for 200 years
1a. Quinine

• Originally thought malaria was caused by “bad air.” The word *mala aria* means “bad air” in Medieval Italian.

• It was known as “Roman fever” in the ancient world.
1b. Quinine

• Europeans only began to understand by 1820.
• Only in 19th Century, Europeans learned it also prevents malaria.
• Only in late 19th Century, cause of malaria discovered.
Malaria: A Major World Disease
Malaria: A Major World Disease

- Nearly 3 million people die from malaria each year; about one each 30 seconds
- 75% of deaths are African children
- Malaria 4th major cause of death in developing countries
Malaria: A Major World Disease: 2012 Update

US Center for Disease Control (CDC) says

- In 2009 3.3 billion people (half the world’s population) live in areas at risk of malaria transmission in 109 countries and territories;
- Caused between 708,000 and 1 million deaths

http://www.cdc.gov/malaria/malaria_worldwide/impact.html
Malaria: A Major World Disease

- In addition to death, malaria causes
  - Loss of energy
  - Inability to work due to frequent fever attacks
  - Almost total infertility in women
Malaria: A Major World Disease

• African slaves were sought partly because many Africans have genetic immunity to malaria

• This related to sickle cell

• Learn more about malaria, sickle cell and African-based medicines for malaria in the lecture 02 for week 09.
Malaria: A Major World Disease

- 1882 mosquito transmission hypothesis first advanced
- 1897 mosquito theory proven
- 1934 Germans developed synthetic quinine now called “chloroquine.”
Malaria: A Major World Disease

• In recent years malaria taking resistant forms to quinine

• New drugs – eg Fansidar – not very reliable and have many side effects

• Search is on for additional compounds
Malaria: A Major World Disease

• Two promising findings:
  – *Artemisia annua* from China – see later in the course in week 15
  – Various root crop compounds from traditional medicine of Nigeria – see later in the course in week 09
2. Sassafras and Sasparilla

- First used as teas by Indians.
- Mixed with sugar, they became root beer.
- First sold as medicines, later as soft drinks.
3. **Ipecac: 2012 Update**

- Amazonian Indians made from a tree root.
- Causes patient to vomit.
- Still used by poison clinics throughout the world.
- Kills amoeba that cause amoebic dysentery.

[Weatherford pages 175–182; second edition pages 224–233]
4. Vitamin C

• Early European explorers thought scurvy was infectious.
• Indians knew it was not.
4. Vitamin C

- Scurvy causes bleeding gums, skin splotches, a wretched stink, and leads to death.
- Huron Indians used evergreen bark and needles, probably hemlock or pine.
4. Vitamin C

• Became a legend among sailors as a cure for syphilis – but not true
• James Lind (1716-1794) read about Huron cure for scurvy
• British Navy supplied limes to prevent scurvy -- origin of word "limey" for sailor in British English
5. Iodine

• Incas prevented goiter with kelp – a kind of seaweed rich in iodine.

• Incas brought it from the coast into the high Andes
6. Laxatives

- Shrub bark used by Oregon and California Indians.
- Helps constipation in mild and general way.
6. Laxatives

- Still not synthesized.
- Still the world's main laxative.
7. Curare

- Amazonian Indians make it from a woody vine, cooked into a gum.
- Blocks nerve transmission to muscles, leading to paralysis and death through asphyxiation.
7. Curare

• The death is painless and used in Holland since 1980s for euthanasia.
• In small doses can be a muscle relaxant – used for tetanus and for abdominal surgery.
• Used for urinary tract infections
• Used for acute arthritis
7. Curare

• Now has been synthesized into several muscle relaxing drugs.
8. Other Medicines

- Northeastern US Indians pinkroot against fever
- various emetics
- astringents
9. Indian Aspirin

• North American Indians poplar and willow bark
• Used as a pain killer
• Now known to be chemically similar to aspirin
10. Medicines for Women

• Oak tree root used as antispasmodic to induce menstruation.

• Bitter root to ease pain of childbirth -- pioneers called it “birthroot.”
11. Balsams

- Wide variety to heal flesh wounds.
- Used also today for ointments and toilet articles [perfumes].
12. Astringents

- Dried flowers used to make a tincture to relieve swelling.
- Wintergreen, now used for candies and medicines.
13. Moisturizers

• Indian petroleum is now called “jelly.”
• One of first uses for petroleum, it protects wounds, keeps skin moist.
• Indians also used it to lubricate tools.
14. Surgery

- Inca trephining, a form of brain surgery to relieve swelling, especially useful for concussions.
• Aztecs the most sophisticated New World surgeons. They had –
  – Skin specialists.
  – Surgeons.
  – Midwives.
  – Bloodletters.
Aztec Medicine

– Herbal pharmacists.
– Drug dispensers.
– Today, only lasers cut more precisely than Aztec obsidian scalpels.
• Other Indian surgeons sewed lacerations with bone needles threaded with human hair.

• Amazonian Indians made syringes with rubber.
• North American Indians made them with animal bladders.
  – European doctors still use the rubber hose and syringe.
• Lanced boils.
• Amputated limbs.
• Made artificial limbs.
• Removed teeth.
• Castrated men and animals.
• Knew how to suck out snake venom.
• Used tourniquets and cauterization.
• Aztecs also had deodorants, toothpaste, breath fresheners.
15. Anatomy

• Aztecs probably had most sophisticated anatomy of 16th century.
• Derived in part from the grisly human sacrifices.
Aztec Physicians

• Understood role of heart and nature of blood circulation long before William Harvey (1578-1657).

• Nahuatl (Aztec) doctors identified and named virtually all of the body organs recognized today.
• Aztecs used frequent bathing and medicinal baths.
• Used for exhaustion, aching muscles, and childbirth recovery.
• Aztecs had steam baths.
• Other Indians had sweat lodges and cold baths.
Scientists today are searching for new chemically active drugs by interviewing traditional healers among Native Americans and others.
One study found a success rate seven times greater for identifying plants of medicinal value when using the knowledge of local healers rather than just randomly testing plants in the rainforest.
