

Interpreting Native American Herbalism

by Toni Leland

This module explores some Native American herbal remedies – and interpretations of them by Western science in historical and contemporary contexts. First, it highlights the importance of plants — even possibly familiar local plants — as a source of medicine. Second, it guides practice in evaluating evidence and sources of information (through the testimony of others): when can we trust a remedy to be both safe and effective? Third, it introduces questions about how we assess reliability in science and how such assessments may be shaped by cultural perspectives.

Learning Objectives

Science/Botany

- be able to identify, collect, preserve, and understand the significance of some of the wild plants in our own local area
- appreciate the importance of plants in our environment

Methods of Science

- be able to discuss and evaluate scientific claims (using Native American herbalism as an example) based on experimental results, but also on the quality of the experimental design

Nature of Science

- be able to articulate factors in reliable scientific claims, such as the nature of good evidence and credible testimony.
- comment on the significance of historical perspective and cultural background and how that affects our thinking and the practice of science and medicine.

Instructional Format and Students Assignment/Assessment:

The module is designed to rely on *discussion*, both in small groups and as a whole class, and on *journaling*, where students record their views, reasoning and justification in writing. The journal can be used by the students to write a final retrospective of their reasoning process: comparing their earlier conclusions to the ones they would draw at the end of the module. They may describe what they felt they did well and why, whether they would think about changing their evaluative strategies, and what factors they would recommend using for this type of decision making in the future.

The module proceeds by situating students in several short historical case studies: juniper as a remedy for scurvy (1500s), bloodroot (for various treatments in Colonial times), and patent medicines (in the 1700 and 1800s). As an optional extension, students may choose a number of wild local plants/herbs, collect and preserve them, and research the medicinal and food applications for at least one of them.

Interpreting Native American Herbalism

Introduction

We hear stories about boy scouts, nature explorers, and even everyday campers and hikers becoming lost in the “wilderness”. What happens to these people? If it happened to you, what would you need to know in order to take control of this situation and survive?

DISCUSSION: Would you be able to find food? What is edible and what is not?
How would you figure it out?

JOURNALING: How can you tell or figure out what is safe and what isn't?

When considering your survival, not only are food, water, and shelter important, but your health is also a key concern. Just like lack of food and water, if you get sick or injured, you could die. This was a real concern to early American Colonists — and to the natives already here.

Jacques Cartier's Ailing Crew, 1534

In 1534, the French explorer Jacques Cartier undertook an expedition, his second, up the St. Lawrence River (modern day Canada). His expedition party was subjected to several delays and did not reach present day 'Montreal' until November. Winter descended. Four feet of snow and thick ice stranded the ships and its crew. This was the first winter on the new continent for the French. It was bitterly cold and the French were not prepared. They had no winter supplies (snowshoes, etc.) and no knowledge of the land beyond the river. They were paralyzed. The French were stranded in unfamiliar territory, surviving on the old meager rations packed from the summer before, and only occasionally eating a meal of fresh game. The men began to suffer. They began to get extremely sick.

Cartier recorded the incident in his journal:

...the sickness broke out among us accompanied by most marvellous and extraordinary symptoms; for some lost all their strength, their legs became swollen and inflamed, while the sinews contracted and turned as black as coal. In other cases the legs were found blotched with purple-coloured blood. Then the disease would mount to the hips, thighs, shoulders, arms, and neck. And all had their mouths so tainted that the gums rotted away down to the roots of the teeth, which nearly all fell out. The disease spread among the three ships to such an extent that, in the middle of February of the 110 men forming our company, there were not ten in good health so that no one could aid the other, which was a grievous sight considering the place where we were. (*Voyage of Jacques Cartier*, 76)

Twenty-five men died. Their bodies were stacked, frozen, in the cargo holds of the ships, a foreshadowing of the fate for the rest. In desperation, Cartier and the Captain had one of the men's bodies cut open hoping to be able to understand what was happening. His heart was white and shriveled, his lungs were black, his blood had pooled and collected around his heart, and his legs which

were black on the outside, were surprisingly otherwise healthy on the inside. Bewildered, they closed up his body and tried to bury him the best they could in the frozen ground. They felt that their fate of death was sealed.

JOURNALING AND DISCUSSION: If you were Cartier, what would you do? What would you need to know? How would you acquire this information?

The French had been forced to settle for the winter near the Iroquois village of Stadacona. The previous summer the French had passed by the Iroquois tribe to trade upriver with their enemies. This snub by the French offended the Iroquois. The relationship between the French and the Iroquois was strained. Word came to the French that the people in Stadacona were suffering from the pestilence, even before the French had become ill. In the town of 600 people, the Iroquois confessed, 50 had died. Because the French feared catching the Iroquois disease, they drove them away. Even though the French isolated themselves, they began to get extremely sick. Cartier and a few other crew members who were in direct contact with the sick Iroquois, however, never got sick. Then, as Cartier wrote:

One day our Captain, seeing the disease so general and his men so stricken down by it, on going outside the fort to walk up and down on the ice, caught sight of a band of people approaching from Stadacona, and among them was Dom Agaya [a native] whom he had seen ten or twelve days previous to this, extremely ill with the very disease his own men were suffering from; for one of his legs about the knee had swollen to the size of a two-year-old baby, and the sinews had become contracted. His teeth had gone bad and decayed, and the gums had rotted and become tainted. The Captain seeing Dom Agaya well and in good health, was delighted, hoping to learn what had healed him in order to cure his own men.” (*Voyage of Jacques Cartier*, 79)

Dom Agaya told Cartier that the Iroquois women brewed him a tea containing Juniper bark and needles. Dom Agaya drank the tea and the tea dregs were then used as a poultice for his swollen legs. The Iroquois seemed to have a cure.

JOURNALING AND DISCUSSION: If you were a crew member on Cartier's expedition, what would you advise a sick crew member to do? What if you were ill yourself? Why? What criteria would you use in order to judge whether or not the Iroquois remedy was safe and effective?

Because the French were suffering from the same disease, Dom Agaya asked two women from his tribe to teach Cartier and his men how to brew the tea. The tea and the poultice were offered to the men who were ill. Few French were willing to swallow the thick, ill smelling brew. A few of the men decided to risk it and drink the foul stuff. These men found themselves to be almost immediately relieved of their symptoms. After realizing the tea's ability to cure the men, the rest of the crew “were ready to kill one another” in order to some of this miracle potion.

DISCUSSION: How might the Iroquois have come to know that the tea would cure the illness?

The French and the Iroquois thought their illness was transmitted through direct contact with another person. The French method of treatment was to isolate the infected individuals to stop the spread of the disease. The Iroquois simply hoped to make the ill person feel better by feeding them the Juniper tea. The Iroquois gave the tea to relieve symptoms, not to cure the illness. neither the sailors nor the Iroquois seemed to understand why the tea cured their disease. In fact, Juniper was used by Native Americans as a remedy for other ailments. Traditionally it was used externally for snake bites, chancres, sore aching muscles, arthritis and rheumatism. Internally, it was used for treatment of ulcers, respiratory ailments, colds and constipation. (Miczak, 29-30)

JOURNALING AND DISCUSSION: After the experience on Cartier's ship, would you trust the use of juniper as a cure for a snake bite? What is the basis for your judgment?

James Lind and Lemon Juice

In the 1600s, a different treatment was used by both European sailors and American Colonists for a similar illness: lemon juice. How they came to know it was an effective treatment no one seems to know today. Still, no one understood then what caused the illness, not how to truly cure or prevent it. (Should that influence whether one chose to rely on the lemon juice or not?)

During the voyage on the HMS *Salisbury*, in April and May of 1747, 400 of the 4,000 crewmen began to fall ill with the same illness. On board was British naval surgeon James Lind. He knew about the illness suffered by Cartier's crew and of the treatment of his illness with Juniper tea. But Lind followed a different strategy. With the permission of his captain (but likely not of the crewmen), Lind took 12 men with extreme and similar symptoms of illness for an experiment. All twelve men were housed in the same isolated compartment, fed the same diet and the same quantities of food: for breakfast, gruel sweetened with sugar; for lunch, fresh mutton broth; and for dinner, barley and raisins, rice and currants, sago root and wine. After 14 days, Lind separated the men into 6 pairs and supplemented each group's diet with a different food. Each group was given one of the following: alcoholic cider; vinegar to drink and doused on their food; sea water; two oranges and one lemon a day; a medicinal paste of garlic, mustard seed, dried radish root, balsam of Peru and gum myrrh, washed down with barley water, along with a mild laxative of cream of tartar; or nothing additional at all.

The men given the oranges and lemons were cured within 6 days (coincidentally that was when Lind ran out of citrus fruit). The men who were given the cider were better off than the others but after 2 weeks were still too weak to return to work. Lind observed that the men who drank cider on their sea voyages fared better than those who did not drink any cider.

DISCUSSION: How did James Lind's approach differ from that of Cartier or the Iroquois? Do you think it was appropriate to try the diets on new members without

their consent? Do you think Lind's results were more trustworthy than the Iroquois's? On what do you base your judgment?

The use of lemon juice or juniper tea are good examples of scientific discovery using trial and error. Neither the French, the Iroquois, or James Lind really understood the disease, what caused it, or how it was spread. However, they did find a way to cure it. Early medicine began with human communities learning about their native plants by trial and error.

Bloodroot

Another early herbal remedy was the use of the roots of the bloodroot plant as an external treatment for skin burns and ringworm. Again, no one knows how this came about. Perhaps a bleeding wound was wrapped by various leaves and someone noticed that some plants helped soothe the pain or helped the wound to heal faster. The effectiveness of the bloodroot would have been easily appreciated: if the wound looked better, it must work. Bloodroot was also an effective insect repellent (if you put it on and the insects don't bother you, then it must work!). Bloodroot was also applied as a treatment for warts and to decorate the skin (the root is red). Someone now suggests to you that bloodroot may be used internally to treat digestive or breathing problems.

DISCUSSION: Would you trust this proposed remedy? Why or why not? What course of action would you take if sick?

Although we now know that bloodroot has antiseptic and anesthetic properties and is currently used in toothpaste and mouthwash (to inhibit the growth of plaque), it is also toxic and should not be ingested. It has been listed as unsafe by the FDA. Bloodroot ingested in large enough quantities can result in nausea and vomiting and can even slow down your heart, decrease your muscle strength and result in coma. In high enough doses it can cause death. Ironically, bloodroot has anti-cancer properties as well as its antiseptic and anesthetic properties. Who would have guessed?

Using the wrong plant may prove to be fatal. After one or several deaths, people would attempt to identify the cause. After a while, the poisonous plant would hopefully be identified. It may have been thought that if these plants were deadly in large amounts to humans, maybe, in smaller amounts it could destroy an illness. Further trial and error experiences could sometimes lead to a successful use of the plant to cure illnesses. Of course, this trial and error method with using poisonous plants has extreme risk and costs. Sometimes small amounts of deadly plants (or plants that were just disagreeable) would result in vomiting, intestinal cramping, or diarrhea, and would be used to purge the body of more deadly materials. If used correctly these dangerous plants could be used in beneficial ways.

From Colonization to Patent Medicines

When populating the New World, the Colonists owed their survival to the Native Americans. The Native Americans taught the Europeans not only food survival but treatments for disease and discomfort. From Native Americans, they learned how to treat malaria with **quinine**, stimulate the

heart with **foxglove**, and treat constipation with **cascara sagrada** (sacred bark) (an ingredient that is still found today in some over the counter laxatives!). Many Native American remedies began to be accepted by Europeans.

In the 1700's, some early Colonists began to use the local Native American herbal remedies as their medicines from Europe were hard to acquire. One Native American treatment adopted by the Colonists was **tobacco**, used to treat lung congestion. Many Colonists, like the Puritans, held fast to their beliefs and did not trust Native American herbal remedies. They limited their communication and sharing of medicinal practices. Many Colonists did not trust the Native Americans, and the natives did not always want to share their tribal practices.

In 1711, the first North American patent for medicine was Tuscorara Rice, named for an Iroquois tribe and sold as a cure for tuberculosis. As a result a flood of patent medicines, many with the word "Indian" in the name to suggest Native American origin, even though the ingredients were imported from abroad. Many of these medicines contained high levels of alcohol giving an immediate sense of well-being. In the 1700s-1800s, Dr. Thomson, a well respected and self-taught physician, appreciated the combination of Native American and Colonial herbs. He found certain compounds of medicinal plants to be most helpful and began to patent them. Dr. Thomson claimed that his patented medicines were not for personal profit or credit, but to protect people from the misrepresentations of other medicinal remedies. This opened up the flood gates for patent medicine. They were all the rage. But not all were truly effective.

In the late 1800s "snake oil" salesmen sold medicines that were sometimes based on safe and effective Native American herbal remedies, often labeled with pictures of "Indian Maidens" to convey to the remedy's authenticity. The patented medicines did not disclose the ingredients in their remedies. Many of these 'remedies' contained addictive substances like alcohol, opium, morphine, heroin and marijuana extracts.

DISCUSSION: As a consumer, how would you be able to distinguish between a genuine medicine and a fraud?

In 1906, the Pure Food and Drug Act required patent medicine bottlers to disclose the ingredients in their medicines to the public. In 1912, the Shirley Amendment added further requirements by preventing medicines from containing "any statement . . . regarding the curative or therapeutic effect . . . which is fraudulent."

Class Excursion/ Learning Adventure

Using plant guides that are available for the area, students will collect and identify native plants. It would be beneficial for students to identify and collect different species of plants so that class discussion and comparison can occur. The students should not only be able to identify the plants that they collect but should also be able to find at least one plant that can be used for the treatment of an ailment. This activity is a great lead into introducing plant classification systems, teaching students how to use plant

guides, and practicing collection and preservation methods. For the purpose of this module, students will be asked to create an information board which displays and explains their plant collection.

For further information regarding collecting and preserving medicinal plants, refer to Nelson Coon's *Using Plants for Healing: An American Herbal* and/or Marie Miczak's *Nature's Weeds, Native Medicines*. See also the Bibliography.

DISCUSSION: Given our plant research, does anyone have a proposal for an herbal remedy for scurvy? If we have more than one available treatment, which one should we use? Why?

JOURNALING ONLY: How could we determine which was best? Would it relieve the symptoms or cure the patient? How would we know whether we had a cure or whether we just relieved the symptoms?

Classroom Debate and Learning Enrichment

Students are to use the plant collections and information that was previously gathered. Students should identify an illness (that is treatable with one of the native plants they have already researched and collected) and identify a Western medical treatment for the illness. Students should choose a position either supporting the herbal remedy or supporting the Western medical treatment. Depending upon class structure and time allotment, students can either work on this individually or in groups; however, both sides of the issue should be addressed.

Students should:

- establish and justify the criteria they feel should be used to support their viewpoint.
- address some of the economic, safety, and cultural issues as it relates to the scientific study and application of herbal medicines and today's medical views.
- discuss whether or not they believe medical science has progressed and improved over time. Have we learned more over the course of time? Can we trust more now than they could in the past? Should we continue on our current course of medical science (explain what you think our current course is) or should we choose a different one (if so explain what course should be taken)?

The Case of the Lost Hiker, Reprise

(Refer to a diagram of native plants — some edible, some poisonous.)

JOURNALING AND DISCUSSION: Which plants could we eat safely and which ones should we avoid? What methods do we have of developing our knowledge?

Reclaiming Native Medicine

Today we are beginning to look at the healing process as more than just pill medication. Many herbal remedies that were used by Native Americans are being used today. Ginger, ginseng, echinacea, yarrow, nettle, mint, slippery elm, witch hazel, and hawthorn are just a few. These herbal remedies are found in "natural food" stores and some are prescribed by physicians. Many Native American medicinal herbs are being distilled and refined into pharmaceuticals. If we include plant and mold

derived antibiotics as well as synthetically produced plant remedies, it is likely that 60-70 percent of our modern medicine has its origins as recognized Native American herbology. The herbs that the Native Americans identified as having some kind of healing power.

Chemistry Enrichment: How Medicinal Plants Work

For further information, consult Judith Sumner, *The Natural History of Medicinal Plants* and J.S. Kidd and Renee A. Kidd, *Science and Society: Potent Natural Medicines, Mother Nature's Pharmacy*. Both are listed in the Bibliography.

Bibliography

On Bloodroot:

- Cichoke, Anthony, D.C., Ph.D. Secrets of Native American Herbal Remedies. New York, NY: Penguin Putnam Inc: 2001.
- Foster, Steven and James A. Duke. Eastern/Central Medicinal Plants and Herbs 2nd Ed. Peterson Field Guides. New York, NY: Houghton Mifflin Company: 2000
- Foster, Steven and Roger A. Caras. A Field Guide to Venomous Animals and Poisonous Plants: North America North of Mexico. New York, NY: Houghton Mifflin Company: 1994
- Gadd, Laurence. Deadly Beautiful: The World's Most poisonous Animals and Plants. New York, NY: Macmillan Publishing Co., Inc: 1980.

On Colonial Americans:

- Kidd, J.S. and Renee A. Kidd. Science and Society: Potent Natural Medicines, Mother Nature's Pharmacy. New York, NY: Chelsea House: 1998.
- Robinson, Martha. New Worlds: New Medicine, Indian Remedies and English Medicine in Early America. Early American Studies (McNeil Center for Early American Studies), PA, 2005: 3(1): p94-110.
- Sumner, Judith. American Household Botany: A History of Useful Plants 1620-1900. Portland, Oregon: Timber Press: 2004.
- Sumner, Judith. The Natural History of Medicinal Plants. Portland, Oregon: Timber Press, 2000

On Jacques Cartier:

- Brown, Stephen R. Scurvy: How a Surgeon, a Mariner, and a Gentleman Solved the Greatest Medical Mystery of the Age of Sail. New York: St. Martin's Press: 2003.
- Cook, Ramsay. The Voyages of Jacques Cartier. Canada. University of Toronto Press Incorporated 1993.
- Coon, Nelson. Using Plants for Healing: An American Herbal. Rodale Press: 1979
- Kidd, J.S. and Renee A. Kidd. Science and Society: Potent Natural Medicines, Mother Nature's Pharmacy. New York, NY: Chelsea House: 1998.

On James Lind and Scurvy:

- Brown, Stephen R. Scurvy: How a Surgeon, a Mariner, and a Gentleman Solved the Greatest Medical Mystery of the Age of Sail. New York: St. Martin's Press: 2003.
- Kidd, J.S. and Renee A. Kidd. Science and Society: Potent Natural Medicines, Mother Nature's Pharmacy. New York, NY: Chelsea House: 1998.

On Patent Medicine:

- Coon, Nelson. Using Plants for Healing: An American Herbal. Rodale Press: 1979
- Gwilt, John R, PhD, and Peter R. Gwilt, PhD. Native North American medicines. The Pharmaceutical Journal, December 23/30 2000, Vol 265 No 7128, p940-941.
- Kidd, J.S. and Renee A. Kidd. Science and Society: Potent Natural Medicines, Mother Nature's Pharmacy. New York, NY: Chelsea House: 1998.
- Miczak, Marie, D.Sc., Ph. D. Nature's Weeds, Native Medicines. Twin Lakes, WI: Lotus Press:

1999

On Returning to Our Past:

Coon, Nelson. Using Plants for Healing: An American Herbal. Rodale Press: 1979

Kidd, J.S. and Renee A. Kidd. Science and Society: Potent Natural Medicines, Mother Nature's Pharmacy. New York, NY: Chelsea House: 1998.

On Trial and Error:

Gwilt, John R, PhD, and Peter R. Gwilt, PhD. *Native North American medicines*. The Pharmaceutical Journal, December 23/30 2000, Vol 265 No 7128, p940-941.

Kidd, J.S. and Renee A. Kidd. Science and Society: Potent Natural Medicines, Mother Nature's Pharmacy. New York, NY: Chelsea House: 1998.

Robinson, Martha. *New Worlds: New Medicine, Indian Remedies and English Medicine in Early America*. Early American Studies (McNeil Center for Early American Studies), PA, 2005: 3(1): p94-110.

On Useful Lists of Plants and their Native American Use:

Cichoke, Anthony, D.C., Ph.D. Secrets of Native American Herbal Remedies. New York, NY: Penguin Putnam Inc: 2001.

Foster, Steven and James A. Duke. Eastern/Central Medicinal Plants and Herbs 2nd Ed. Peterson Field Guides. Boston, New York: Houghton Mifflin Company: 2000

Miczak, Marie, D.Sc., Ph. D. Nature's Weeds, Native Medicines. Twin Lakes, WI: Lotus Press: 1999

Additional Resources

Murphey, Edith Van Allen. Indian Uses of Native Plants. Glenwood, Illinois: Meyerbooks, 1990

Peat, David F. Lighting the Seventh Fire: The spiritual Ways, Healing, and Science of the Native American. Secaucus, N.J: Carol Publishing Group: 1994.

Stuart, David. Dangerous Garden: the Quest for Plants to Change Our Lives. Cambridge, Massachusetts: Harvard University Press: 2004.

Tekiela, Stan. Wildflowers of Minnesota. Cambridge, Minnesota: Adventure Publications, Inc.:1999.