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The Philadelphia Inquirer**Holly of hollies****Lewis and Clark clipped hundreds of specimens from the West****- a sprig of holly, osage orange, milkwort, wild flax. Many****have come home to Philadelphia, and are in demand as the****bicentennial of the historic expedition draws near.****By Sandy Bauers**
Inquirer Staff Writer

Nearly 200 years ago, a sprig of mountain holly began an extraordinary journey. It was April 11, 1806, a rainy day at the edge of the great rapids of the Columbia River in what is now Oregon.

"The mountains are high steep and rocky," Meriwether Lewis wrote in his journal. "Near the river, we find the Cottonwood, sweet willow... mountain holley, & common ash."

Lewis plucked a few sprigs of the holly and placed them gently in a dry oilskin bag.

That night, perhaps, he lay the cuttings flat on a specimen page, noting the date and location on the paper in his elegant handwriting. He pressed them between sheets of blotting paper, sandwiched them between two boards, and maybe set them near the campfire to dry faster.

Thousands of miles later, traveling by horseback, canoe and wagon, the holly wound up in Philadelphia. It didn't stay long, but it is here again, along with 225 other original

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samples collected on the historic expedition of Lewis and Clark.

In a locked, climate-controlled vault at the Academy of Natural Sciences, Rick McCourt opens a state-of-the-art cabinet and pulls out a folder made of acid-free paper embedded with microscopic silicates to absorb atmospheric pollutants. With a reverence more common to huge diamonds or great works of art, he opens it to reveal the brownish-green sprigs, hand-sewn those many years ago to a sheet of rough paper and labeled *berberis aquifolia*.

Preserved this way, "it will be around another few hundred years, for sure," McCourt said.

It barely made it this far.

Portions of the collection were lost and then found, forgotten and then remembered, sent across an ocean and auctioned to the highest bidder.

Eventually, they made their way back to Philadelphia.

And with the bicentennial of the beginning of the great exploration approaching next year, they are fast becoming the most famous - and most sought-after - dead plants around.

Plants weren't the priority in 1803, when President Thomas Jefferson picked Lewis - who then enrolled his friend, Capt. William Clark - to lead a daring expedition to explore land that the new nation had just acquired from Napoleon Bonaparte in the Louisiana Purchase - and, they hoped, find a water route to the Pacific Ocean.

But Jefferson, a farmer and botanist, also was interested in the plants they might discover along the way. He dispatched Lewis to Philadelphia for training with Benjamin Smith Barton, a professor at the University of Pennsylvania and author of the first botany textbook published in America.

Lewis and Clark's perilous journey took them up the Missouri River, over the Rocky Mountains, and down the Columbia to

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later, they had been given up for dead.

"The men themselves almost didn't make it back," McCourt said. "But the plants did."

Most of this botanic legacy - meticulously labeled, he noted, "with all the appropriate scientific information" - was then unknown to anyone besides Indians.

Today, these plants define the American West. All but one of the species - a type of cultivated tobacco that is extinct, or close to it - are common.

Some became state trees and flowers. (*Berberis aquifolia* - technically a holly but better known as the Oregon grape - is the official flower of Oregon.) Some are medicinal plants used to fight colds and even cancer. Some were a boon for farmers.

Lewis and Clark found the prairie apple in Nebraska, pink cleome and milk vetch and broomweed in South Dakota, purple coneflower and white milkwort in North Dakota, tansy and western huckleberry and bitterroot and wild flax in Montana, lodgepole pine and sitka alder and Jacob's ladder and wild ginger in Idaho, prickly pear cactus and pestle parsnip and fennel in Oregon.

They sent back cuttings of osage orange trees, the descendants of which now grow in the graveyard of St. Peter's Church in Society Hill.

McCourt has a modern-day specimen of *berberis* growing in his backyard in Chestnut Hill. It's his own piece, however tenuous, of the expedition.

While the holly species is not rare, the original specimens are priceless.

"No other collection of North American plants has so much importance from the standpoint of both history and science," Alfred E. Schuyler, the Academy of Natural Sciences' curator emeritus of botany, writes in a CD-ROM about the collection that includes digital images of every sample.

Many are what scientists call "type" specimens - the actual plants used to describe the characteristics of new species. Their very existence moves even carefully spoken scientists to fits of gushing. These are the actual flowers that first caught Lewis' eye, the angled cuts from his knife still visible, his handwriting still readable.

Tourism types see their potential to draw a crowd, from the Missouri Historical Society, which wants to include specimens in a two-year, coast-to-coast traveling Lewis and Clark extravaganza, to Monticello, which is mounting an exhibition in Virginia next year to commemorate Jefferson's role as the steward and organizer of the expedition.

Few of the durables - canoes, compasses, rifles - survived the centuries, said Elizabeth Chew, associate curator of collections at Monticello, Jefferson's estate. And yet the fragile "brown twigs" did.

"They have this aura."

Ironically, the only time in the foreseeable future that any are scheduled for display in Philadelphia is when the Missouri Historical Society exhibit comes to the Academy from November 2004 to March 2005.

Nearly a dozen institutions have asked to borrow specimens. McCourt, 49 - a slender, balding researcher who coincidentally graduated from Lewis and Clark College in Portland, Ore., and came to the Academy in 1996, partly because of the lure of the Lewis and Clark plants - is the gatekeeper.

It is McCourt who must discern whether the institutions that want to borrow a few specimens have adequate security, appropriate climatic conditions, and correct lighting (fiber-optic is cooler than incandescent).

"We don't want to celebrate so much that there's nothing left," he noted wryly.

Transporting the plants is a challenge, too. They must be kept level. They must be kept dry.

The plants' current home, a dark room kept at 60 degrees Fahrenheit and 55 percent humidity, seems almost incongruous, considering the travails of their original journey, during which they were no doubt rained on and snowed on and inadvertently dunked in rivers.

Among what must have been hundreds originally collected, many did not survive. Boats tipped over. Boxes floated away. Some that were picked on the way west and cached until they could be retrieved on the return trip were lost in floods.

Even those that made it safely back to Philadelphia in 1806 were not yet home free.

Many spent 80 years, more or less forgotten, alternately baking and freezing in an attic of the American Philosophical Society on South Fifth Street, where the Lewis and Clark journals still are today. Academy botanist Thomas Meehan rediscovered them there in 1896.

Others, including the holly, wound up in the possession of William Pursh, a local horticulturist of some note and, as McCourt tells it, questionable repute.

Pursh was using them to write and illustrate a book about the plants of North America, and they came along when he moved first to New York and then to London, where they somehow migrated to the collection of botanist Aylmer Bourke Lambert.

After Lambert died, his entire collection of 50,000 specimens was put up for auction in London. It was 1842, and a young American lichenologist named Edward Tuckerman was intrigued by the listing for "four cabinets of North American plants." There was no mention of Lewis and Clark.

Tuckerman brought them home to Massachusetts - and, 14 years later, sent what he then considered his discards to the Academy of Natural Sciences as a courtesy connected with his professional request to examine lichens in Philadelphia. Stunned Academy botanists recognized their provenance.

By 1898, 92 years after the return of the great explorers, all but a few specimens remaining in London were consolidated at the Academy, where they have remained, largely in storage, for the last 104 years. They are the crown jewels of the museum's collection of 1.3 million plants.

Now, the specimens reside in slightly recessed wells - so they can be placed on exhibit without ever being touched - on blotter paper with tape and animal glue; some, like the holly, remain stitched in place.

Researchers at the Smithsonian Institution who have scrutinized bits of the specimens under an electron microscope have determined they are in good shape. And they have turned out to be scientific treasures - little caches of climactic data, tiny biologic sentinels of a time long past.

Mark Teece, a biogeochemist at the State University of New York in Syracuse, is incinerating minute pieces and measuring the amount of carbon dioxide released in order to determine how much of the gas was present in the pre-Industrial Revolution atmosphere of 1803-06. He also is analyzing waxes preserved in the specimens to estimate precipitation changes along the route.

"There's a huge reservoir of information that you can possibly get out of plants that are dried and have been sitting there for centuries," Teece said.

McCourt, of course, is well-aware of his collection's potential - he even hopes to retrace part of the route taken by Lewis and Clark and gather new specimens along the way.

Meanwhile, he carefully closes the *berberis* folder and returns it to the state-of-the-art cabinet, then turns out the light and locks the door to the room housing the Lewis and Clark plants.

And he is well-versed in the details of the original adventure.

Moments earlier, he had turned to Lewis' journal entry for April 11, 1806, when the men decided to take their canoes "first to the head of the rapids, hoping that by evening the

rain would cease and afford us a fair afternoon to take our baggage over the portage."

McCourt can imagine it all - the paddle, the portage, and Meriwether Lewis stopping to examine the new "holley," removing a few sprigs and stuffing them into his bag, their long journey just beginning.

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