The Magnificent Oxen of the Centennial Farm

This is the story of the oxen program at the OC Fair and Event Center's Centennial Farm.

Welcome to the Centennial Farm

The Centennial Farm is part of the State of California's 32nd District Agricultural Association. The 32nd DAA is generally known as the OC Fair & Event Center. The Centennial Farm is open for public use all year. This year the Centennial Farm celebrates its 25th anniversary. Come visit us to see what we have done in our first quarter century.

The Centennial Farm opened in 1989 as an educational center for students to learn about the importance of agriculture. Each year, more than eighty thousand elementary students visit the Centennial Farm as part of their education about agriculture. The farm is a laboratory where children see, smell, hear and touch farm animals as varied as Suffolk or Dorset sheep; Lineback, Jersey and Holstein cattle; Nubian, Alpine and Angora goats; Pea fowl, chickens and ducks; Llamas; and Duroc, Yorkshire and Hampshire pigs.

The farm accepts donations to expand and enhance its programs through the Centennial Farm Foundation. However, the vital force for the farm is the more than eighty volunteer guides leading the tours around the farm. Docents arrive at 8:45 am Monday through Friday to share their knowledge with the children, parents, and teachers arriving by the busload. We are grateful for the thousands of hours donated by the docents serving the children of Orange county.

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Non-profit tax identification number 33-0484808

The Oxen of Centennial Farm

Our first team of oxen were named Bill and Bob. We purchased this team of two-year old oxen from a Missouri farmer in 1996. We purchased our second team, Patches and Freckles, in 2007. Patches and Freckles were three years young. They were trained by Brianna Bodwell in New Hampshire. Visitors of all ages enjoy seeing our oxen, particularly when a teamster has them out of their corral to demonstrate them working. The Centennial Farm is open to the public seven days a week. We only close on State holidays or when a special event takes over the entire fairgrounds. Guests are welcome to visit any day. Children enjoy the farm because it is their first time on a real farm, and older folks enjoy the farm because it reminds them of their youth. Bring your family and a picnic lunch and enjoy our peaceful farm.

WHAT IS AN OX?

Most Americans cannot tell you what an ox is because oxen are rarities in our nation. An ox is a cow or a bull that has been trained to work. Almost any cow or bull can be trained to work. The first cattle were trained to work more than 6,000 years ago. You might be surprised to know that more people use oxen today than any time in human history. Only a few thousand oxen are used in the United States. However, tens of millions of oxen are used in Mexico, South America, Central America, India, China and throughout Asia. Nearly everywhere that large numbers of people reside, you will find cattle (or their cousins, Water Buffalo) used as oxen. These powerful animals pull

plows, logs, boulders, wagons and anything else that is too heavy for humans to move by themselves. You could train a dairy cow to work or you could train a bull or a steer to work. If you take the time and effort to teach them, they will remember their lessons and work for you for fifteen years or longer. Anyone who drives a team of draft horses, mules, sled dogs or oxen is called a teamster.

In 1996, Jim Bailey, then the superintendent of Centennial Farm, purchased the oxen team of Bill and Bob from Missouri auctioneer Trader Jack Hutchinson. Bill and Bob were cattle of the Milking Devon breed. Bob's service on the farm continued for eleven years, ending in 2007, with his death. Bill continued his work on the farm until his death in 2010. Bill was sixteen years old when he died. Bill was exhibited along with Patches and Freckles for three years from 2007 through 2010.

Jesus Esquivel with Jim Bailey "Out Standing" in his field

Patches and Freckles are a typical size for full-grown male cattle of their breed. They are from a landrace breed known as Lineback cattle. They get their name from the characteristic white line on the ridge of their backs. Lineback cows are used for dairy. Bulls and steers, by six years old, are twice the weight of the cows that were their mothers.

Cattle have three genders: cows, bulls and steers. Neutered bulls are known as steers. In the United States, steers are converted to beef before they are two-years old. If you plan to train your bull to work, you neuter it at six months old. This produces two positive results for an oxen teamster. First, a steer is gentler than a bull, making it easier to work him. Secondly, he grows to be twenty percent larger and stronger than the bull who sired him. We estimate that our oxen are about 500-pounds heavier than their sire. When Patches and Freckles arrived at Centennial Farm in June, 2007, they were 3 years old and weighed 1,600 pounds. By June 2010, they reached their current weight, approximately 3,000 pounds each.

Patches and Freckles were raised by then-teenager Brianna Bodwell on a small farm in New Hampshire. Brianna learned how to train oxen in her local 4-H club, the Yankee Teamsters. When our ox Bob died in 2007, farm superintendent Evy Young and I traveled to New Hampshire to examine oxen for sale. During our trip, I test drove nine oxen teams. After making a deal with Brianna Bodwell, we arranged for a cattle transport company to bring the oxen from New Hampshire to California.

Our oxen's work on the Centennial farm is limited to educating the public about oxen. Instead of having a poster of an ox, we have live animals to demonstrate the power and grace of oxen. Patches and

Freckles were pulling logs out of a New Hampshire forest when they were only 3 years old and half the size they are today. At Centennial Farm, they merely pose in their yoke to show visitors what a pair of oxen looks like when they are ready to work. Since Patches and Freckles arrived in 2007, more than 700,000 students have enjoyed meeting our oxen.

During the annual OC Fair, more than 230,000 visitors stop at our exhibit in Livestock to meet our oxen. Visitors walk away amazed by what they learn about these powerful yet gentle beasts. The first startling revelation is that oxen are cattle. Oxen are not like a cow or a bull, oxen ARE cows or bulls. The only difference between our oxen and a typical dairy cow or a bull is training. There are more than 900 breeds of cattle in the world. Breed means they are all the same species, the differences between one breed and another are differences in size, shape and colors. Just as a Chihuahua and a German Shepherd are two dog breeds with distinctive size, shape and colors and there are more than 400 different dog breeds, there are more than 900 distinctive-looking cattle breeds.

The Irish breed of ***Dexter*** is an example of small cattle; bulls of this breed rarely top 1,000 pounds. Bill and Bob were ***American Milking Devon***; at 2,000 pounds, they were an example of medium sized cattle. Patches and Freckles are an example of large cattle. Patches usually weighs between 2900 and 3100 pounds. During the annual OC Fair, an exhibitor in the Livestock area brings a ***Chianina*** ox to show the public. This bull was trained to be an ox by Frank Scrunton, a dairy farmer in New Hampshire. Chianina cattle originated in the Tuscany area of Italy. They are the largest breed in the world. Some oxen from this breed are seven feet at the withers and weigh in excess of 4,000 pounds.

Cattle come in wide range of sizes, shapes and colors. Some oxen are small and multicolored while some are large and a solid color. You cannot judge an ox by his size. Our Milking Devon Team of Bill and Bob were strong for their size. When Bill was sixteen years old, he weighed 1,700 pounds, yet he was able to dominate six-year-old Patches at 2,700 pounds. The Milking Devon cattle have a long and wonderful history. The first purebred cattle in the United States were Devon's brought to North America on the sailing ship *Charity* in March 1624. *The Charity* landed at Plymouth colony and among the cargo were one bull and three cows of the Devon breed.

Teamster Bill Richards with Bill and Bob Devon Cattle

Devon cattle originally came from Devonshire, England. This breed has been admired for centuries. While there are more than 900 cattle breeds today, one thousand years ago, there were no more than 50 breeds. Devon cattle were one of these fifty ancient breeds. Today,

there are fewer than 2,000 Milking Devon cattle living in Canada, New Zealand, Australia and the United States. In the 18th Century, there were more Devon Cattle in the United States than any other breed. Devon's were called triple purpose cattle, used for dairy, meat and as oxen. Teamster Bill Richards was the first to drive Bill and Bob on Centennial Farm. He was one of my teachers in the art of driving cattle. Richards led the program for four years before moving to Florida in 2005.

Lineback cows are used for dairy. In 2015, more than 80% of dairy cows in the United States are **Holstein** cattle. Each Holstein cow produces more than 8 gallons of milk every day. Lineback cows do not produce as prolifically, thus the small numbers of this breed today. In addition, we have a sizeable herd of Brown Swiss and Jersey cattle in the United States. These breeds do not produce as much milk as a Holstein cow; however, their milk has the highest butterfat content and is splendid for making ice cream and cheeses.

Cattle have been trained to work as oxen for more than 6,000 years. Cattle are easily trained. Oxen teamsters call oxen "willing workers." Oxen teamsters learn quickly that if you treat the oxen with respect and care, that they will be easy to work with every day. I have interviewed more than 250 men and women who have worked oxen teams either while children or as adults. Each teamster has told me that the time they worked with oxen was one of the best times in their lives. They enjoyed working peacefully with oxen. In the United States, we use trucks and tractors to perform the work that oxen used to do for us. Most people in the world do not live as we do in the United States. Of the more than 7 billion people alive today, more than three billion rely on the strength of oxen to produce sufficient food for the human population to survive.

These farmers could not use a truck or a tractor; the land they work is too small for them to afford such machinery. Oxen are beneficial to these subsistence farmers in many ways. In addition to their labor, the droppings of the oxen are used to fertilize the fields. When the oxen tread across the land, they naturally help to aerate the soil. Cattle will eat almost any kind of plant material and still thrive. This makes it easy to feed the oxen; they help grow their own feed. Cattle are ruminate animals; they have a four-chambered stomach. This allows them to get the maximum nutritional value from even poor feed. Horses are not ruminants. Horses have a sensitive digestive system. Unless they receive good quality food, they cannot thrive. Thus, worldwide, farmers who use draft animals do not use horses. Instead, they prefer to work with cattle, camels, water buffalo and llamas . . . all ruminant animals.

A wooden yoke is placed on the neck of oxen to harness their strength to move heavy objects. Teamsters attach the items they want to move to a metal ring in the center of the yoke. The wooden yoke beam we use at the Centennial Farm is carved from a single log. We refer to this beam as a 12-inch yoke because the opening between the ox bows is 12 inches. Farmers today (worldwide) use the same yoking technology as was used thousands of years ago. Wood is comfortable for the oxen. The yoke is strong. Each teamster can make his own beam using hand tools that they may have made himself. Fiberglass, aluminum or a composite fiber are not available to rural subsistence farmers. Oxen teamsters use the raw materials available to them in their local forest.

We attach the yoke beam to our oxen by inserting ox bows through holes drilled in the beam. Our beam is called a neck yoke. The neck yoke we use is designed to slide. The sliding does not harm the animal. Instead, it permits the ox to place the beam just where it needs

to be for him to work. When I attach a heavy load to the yoke, the oxen lower their heads to adjust the beam to just where they want it. In Mexico and Canada, the yoke beam is tied to the horns of the cattle. This is called a head yoke. It is just as comfortable and just as effective as the neck yoke we use at the Centennial Farm. Head yokes are custom made to fit the head of each ox, it is as comfortable for the oxen as a tailor-made suit is to a man.

THE STUDEBAKER CONNECTION

Patches and Freckles sometimes do their work by pulling a load on an ox cart. The Centennial Farm cart was designed and built by the Studebaker Brothers circa 1906. Teamster Bill Richards found the cart on the back lot of a movie studio in 2000. The wooden staves were rotten but the metal parts, despite some rust, were in good condition. Centennial Farm purchased the cart and set about refurbishing it. The restoration team of volunteers including Ed Buck, Bill Richards and Bud Schulte brought our Studebaker ox cart back to its original condition. When the spindle was removed from the axle, the name Studebaker and a serial number gave Richards an idea. He contacted the Studebaker Museum in Michigan and they confirmed that this vehicle was built by the Studebaker

Brothers in San Francisco to haul grapes. It was built for one ox standing between two poles. Richards and company repurposed the cart for two oxen by installing a wooden tongue. Patches and Freckles work on either side of the tongue.

Our Studebaker ox cart is typical of a farm tool used from the mid 1850s through 1920s. We are grateful for the vision of teamster Bill Richards. He saw the value in this cart while it is rusting and rotting and brought it back to life. The wheels were reconstructed by a wheelwright in Amish country. Making a wheel is the work of those who do this every day. The large beer wagon you see pulled by the Budweiser Clydesdale horses was manufactured by the Studebaker Brothers in 1903. This is the same company that later made the famous Studebaker automobiles. We proudly display our 1906 Studebaker ox cart.

OXEN TEAMTERS USE 19TH CENTURY METHODS TO CARVE A NEW YOKE BEAM FOR PATCHES AND FRECKLES

In 2012, the Centennial Farm oxen teamsters decided to carve a new yoke beam for Patches and Freckles. We chose to limit ourselves to using the same tools and methods that a teamster would have used to make his/her yoke in 1850. We selected the middle of the 19th century because that marked the time that many eastern folks packed up their household goods and joined wagon trains traveling westward on the Oregon Trail. Nearly all the wagons on the Oregon Trail were pulled from their St. Louis, Missouri starting point by oxen.

A typical wagon train consisted of more than 300 wagons. These pioneers were led by a wagon master who had already made the trip. Each wagon might be pulled by four oxen in tandem, two by two.

The wagons were small so they could easily travel over the unpaved path and could be floated over streams and rivers without having to be dismantled. Conestoga wagons were designed as freight vehicles to be used in cities with paved roads. The Conestoga was too heavy for overland travel. Instead, the adventurers used so-called farm wagons. These smaller wagons were about four feet wide and 12 feet long. Only essential items that could not be easily made by hand were brought on the wagon. There was no room for grain for horses that you would have to purchase and bring with you if you used horses instead of oxen.

Some of the wagons carried special cargo. There would be several blacksmiths, carpenters, hunters and other craftsmen to make or repair necessary tools. For example, if a yoke beam were broken, a team of folks would fell an appropriate tree and carve a new yoke beam. The oxen were connected to the farm wagon by attaching the wagon tongue to the yoke beam; without a yoke, the wagon could not be moved. Think of the yoke as a hitch. In order to pull a boat with your truck, you must have a hitch on the rear of the truck. In order to pull your wagon to Oregon, your yoke is your hitch and the hitch is in the front instead of the back with a car.

Philip Henderson with Sycamore Yoke Beam

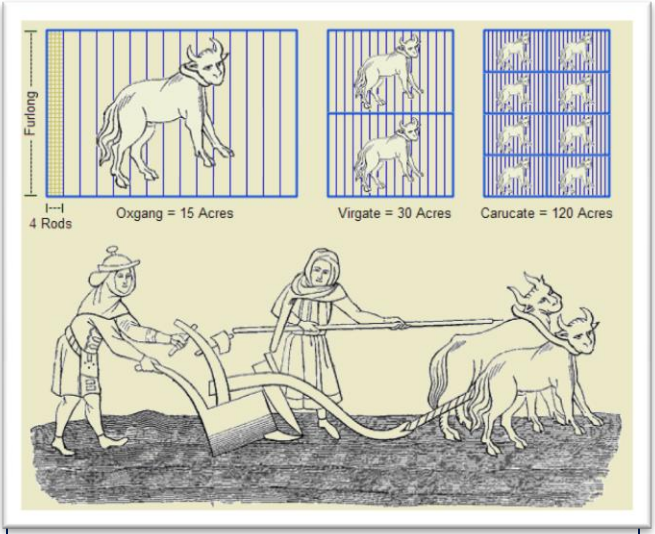
Carving a 12-inch yoke beam for Patches and Freckles was an educational experience for the Centennial Farm teamsters. The methods and tools of the 1850s are scarce today. Hand tools are unfamiliar for people used to plugging in an electrical power tool. We learned how to use sledge hammers, steel wedges, draw knifes, axes, adzes, spoke shaves and travishers. The smallest log necessary to carve a 12-inch yoke is 30-inches in diameter and seven feet long. We chose to use a Sycamore log for our project (a huge mistake that we discovered later); our log weighed just a few hundred pounds more than 2,000 pounds. The log was large enough that four yoke beams could have been carved. However, because we chose a Sycamore, we were only able to carve one beam. The Sycamore *(Platenus racemosa*) has a twisted grain that made carving challenging. Nonetheless, we persevered and completed the yoke beam in the summer of 2014. Ask a teamster to show you our new hand-carved yoke.

OXEN IN MODERN LIFE

An acre of land is defined as the amount of land that can be plowed in one day by an able farmer with a good team of oxen. When an oxen teamster drove two yoke of oxen, that would be four animals yoked together two by two, directing the oxen using a goad stick. The stick was 16.5 feet long and was called a **rod**. This length allowed the oxen teamster to touch any of the four animals either in their front or their rear. Touching the ox in the rear means to speed up, touching him in the front indicates to slow down. The teamster would plow a furrow in a straight line, stop and then turn the plow around. Each furrow was forty rods long or 660 feet. Farmers called this distance "a ***furrows length***" or for short, a **furlong**. A furlong is one-eighth of a mile. When you work a team of oxen, you never want the animals to become

fatigued. You want them fresh and strong all day. Typically, you would begin the day's work at the first sign of daylight. The oxen would work until just before noon, and then they were given a 2-3 hour rest period. The farmer and the oxen would drink water, eat and rest during the hottest period of the day.

After you plowed a furrows length, the oxen would turn the plow to go in the opposite direction. At each turn, the oxen would enjoy a short rest before continuing their work. At the end of the day, you would have plowed a field forty-rods long by four rods wide. Four rods wide is 66 feet. The area of land plowed would equal 660 feet by 66 feet, or 43,560 sq. ft. This is the odd number we call an **acre of land**. Whenever you use the word acre, you are referring to a term that was created to describe the work that oxen could do in one day. When you attend a horseracing event and hear the term 'furlong,' you are referring to a term created to describe the work of oxen.



Agriculture measures from oxen

Now you know that an acre of land and a furlong's distance were derived from the use of oxen. Oxen have played an important role in the development of our way of life. Before humans learned to tame cattle and train them to work, we lived as hunter-gatherers. Humans working together were unable to develop village life until we harnessed the strength and intelligence of cattle. A single ox can easily perform the same amount of work as 8 men can in one day.

When a farmer works by his own strength, he is fortunate to feed himself and his family. However, when a farmer employs an ox to work alongside him, he is able to harvest enough food to have a surplus over the needs of his immediate family. The surplus food can feed his neighbors. His neighbors can devote their energy to building furniture, tools, dwellings, storage structures or to study.

Oxen made villages possible! The villagers developed various abilities including the development of written language, architecture, engineering, artistic products and all the things we now take for granted. Without oxen, humans would not have developed the science of metallurgy. Think of all the items in your life that either have metal parts, or were manufactured in part by using metal tools. Even the paper you write on was manufactured by tools using metal parts.

The ***Bronze Age*** began six thousand years ago. Before that time, we did not have metal in our lives. Before that time, we did not live in communities larger than 100 people. Cattle trained to work opened up these opportunities. Without oxen, there would be no metal. Without the work of oxen there would be no cell phones, no automobiles, no computers, no aircraft and no refrigerators. The list is endless. Without oxen, our modern way of life would be impossible. Be sure to thank Patches and Freckles for their contributions.

CENTENNIAL FARM OXEN TEAMSTERS

Thank you to the men and women who have been or currently are volunteer oxen teamsters at Centennial Farm. For seventeen years, these brave souls entered the corral to handle our oxen teams of Bill and Bob, and now Patches and Freckles.

Thank you Bill Richards, Richard Justice, *Richard Grogan*, Bud Schulte, Bob Mosley, Jacqui Reilly, Buck and Cheri Wall, *Philip Henderson*, Rauha Hilander, Jeannine Marold, Wes Barrett, Ed Buck, *Caprice and David DeLorm* ,Roberta Harvey, *Michelle Andre*, *Nancy Truglio*, and *Dave Hauk*. These teamsters worked with Bill and Bob. *Italicized* names continue to serve with the new team. A second generation of teamsters has worked with Patches and Freckles including Evan Burbridge, Robin Alward, John Lacher, Ed Straub, Megan Steele, Therry Vargas, Daisy McGarr, Lindsey Koob, Courtney Habegger, Jan Rovan, Nancy Loftis, Sheri Levy, Grant Levy, Steve Leff and Alex Pulido.

Jim Bailey

The teamsters are grateful for the continuing support from Jim Bailey, Evy Young, Ed Buck, Jesus Esquivel, Fortino Rivera and Omar Sanchez. These Centennial Farm employees provide continuing support on a daily basis to keep the oxen program running smoothly.

FOR ADDITIONAL INFORMATION

Oxen A Teamster's Guide by *Professor Andrew "Drew" Conroy* ©2007; 291 pages

This is the second edition of this encyclopedia book of oxen lore. Drew Conroy is a professor at the University of New Hampshire, at the Thompson School of Applied Science. He is in the Applied Animal Science Program. Conroy has been training and working oxen since he was a young boy. He is the expert to consult about all matters concerning using cattle to work in agriculture. Conroy has traveled to several African nations to teach agricultural methods to local farmers.

The Pride and Joy of Working Cattle by *Ray Ludwig* © 1995; 55 pages

This spiral bound booklet provides hands on information about working cattle written by a lifelong oxen teamster. Ray Ludwig gives you practical information to get you started working your own team of oxen. Ludwig has more than four-decades experience using oxen.

The Bullock Driver's Handbook by *Arthur Cannon* © 1985; 136 pages

Arthur Cannon worked oxen for more than twenty years in the outback of Australia. Cannon tells great stories about the way oxen were used in logging in the early 20th century in Australia. You get a good sense of all the skills and work that an oxen teamster must have to work cattle. In Australia, oxen are called bullocks and the people who drive them are called bullockies. The photographic images and the drawings are priceless.

Tree in the Trail by *Holling Clancy Holling* © 1942; 60 pages.

This wonderful book was written for children. The author also illustrated the book. This book is valuable just for the illustrations. Tree in the Trail is still used in elementary schools all over America since its publication in 1942. The book tells a story is about a tree that has an interesting life finally becoming a yoke for a team of oxen on the Santa Fe Trail. Excellent book for children of ALL AGES.

Ox Yoke: Carving a Yoke and Bending Bows & Forging Hardware © 1998 Rural Heritage with *Drew Conroy and Dave Kramer*

This DVD has step by step instructions to make a yoke for your oxen using the same methods used for hundreds of years before power tools were invented. The oxen teamsters of the Centennial Farm used this DVD as a primary resource to guide our work when we carved a new 12-inch yoke beam for Patches and Freckles in 2012.

Rural Heritage Magazine published by Mischka Press.

This semi-monthly publication is written for folks who work with draft horses, mules, and oxen. Each issue has one or more stories about oxen. More than 19,000 subscribers enjoy reading this magazine six times a year. This is a great source for anyone interested in purchasing teamster supplies because of the targeted advertising for those who use draft animals for farming or logging. Oxen teamster Philip Henderson is a frequent contributor to this magazine, having had more than forty articles published under the title, *The Wisdom of Cattle*.

www.RuralHeritage.com

For more information about the ancient drawing of cattle visit: http://commons.wikimedia.org/wiki/File:Anthropic_Farm_Units.png

WOULD YOU LIKE TO JOIN OUR TEAM?

There are many opportunities for adults to volunteer their time at the Centennial Farm. The farm is open all year. When the OC Fair closes down on August 16, 2015, the Centennial Farm resumes its primary purpose as a demonstration farm to educate children about where their food and fiber comes from. Each year more than 80 volunteers serve as docent guides for classes all over southern California. We host more than 80,000 school children every year. Docents are trained to perform the tours so you need not have farm experience to qualify. Docents are expected to volunteer four hours for one day each week. Tours begin in late September and conclude in June. Each docent conducts two 90-minute tours of the Centennial farm gardens and livestock exhibits.

Some docents choose to become part of the oxen teamsters group. Volunteers need not have experience working oxen. We teach you how to work with these magnificent animals. Oxen teamster docents volunteer the same hours as tour docents, they just concentrate their work with the oxen. Typical duties for oxen teamsters include, driving, mucking the corral, bathing the oxen and training the oxen. We also participate in the care of the oxen. We help when their hooves are trimmed three times a year. We affix brass knobs to their horns as is required to keep their horns healthy. If you are eager to learn more about our oxen, we are prepared to teach you.

THE CENTENNIAL FARM FOUNDATION

The Centennial Farm Foundation works with community volunteers, plus the management and staff of the OC Fair & Event Center, to assist with planning, development and operations of the Centennial Farm.

After the Centennial Farm was founded in 1989, the Foundation was organized in 1991 to raise support for education programs offered at the farm. The foundation solicits, accumulates and disburses funds to operate Centennial Farm and other agriculturally and youth related education programs and exhibits of the OC Fair & Event Center. For example, the Foundation provided the funds to build the Millennium Barn and to purchase the oxen team of Patches and Freckles.

Director: Evy Young (714) 708-1619
Volunteer Coordinator: Barbara Gregerson (714) 708-1618
After-School Program: Megan Riel (714) 708-1618

Centennial Farm Foundation: (714) 708-1618

Philip H. Henderson began as a volunteer at the Centennial Farm in the fall of 2004. I have been the head teamster for the oxen since 2005, volunteering more than 700 hours each year. I learned to work with oxen through my work at the Centennial Farm. I dedicate this booklet to the memory of our friend, farmer Jim Bailey.