00A015I 00A015I

Project Number: 48-DVG-1920

FUROR OVER FURS

An Interactive Qualifying Project Report

submitted to the Faculty

of the

WORCESTER POLYTECHNIC INSTITUTE

in partial fulfillment of the requirements for the

Degree of Bachelor of Science

By

Katrina E. Vaitkunas

Bryan Padovano

Date: 18 October 2000

Approved:

Daniel G. Gibson III, Ph.D.
Assistant Professor, BB Department
Advisor

Abstract

The purpose of this report is to convey the truths behind the fur industry and those individuals who oppose it in a streamlined, precise manner. In doing so, fur production methods, i.e. trapping, farming, means of killing, tanning will all be examined subjectively. Measures taken by opponents of the fur industry including animal rights activists and environmental groups (e.g. PETA) will also be closely analyzed. This includes everything from peaceful protests and means of distributing information to acts of violence against furriers and fur farmers across the country. All of the information and conclusions presented will be based on unbiased facts in order to represent both sides of the issue in a fair and straightforward manner so that anyone may read this report and draw their own opinion as to what is right and what is wrong.

In an attempt to provide the reader with an impartial report on the fur industry, our research was done using factual information from both pro-fur and anti-fur groups as well as government agencies that provide data about the fur industry. We have also done some research into the history of the fur industry so that our readers will

understand its evolution. Our research was done using news articles, industry publications, and anti-fur propaganda. Questionnaires were also used so that the opinions of fur farmers and furriers across the nation could express their views and share any information that they felt would be important or useful in this report. Also, an in-depth, face-to-face interview with a local furrier was also used to convey the feelings of those whose livelihood depends on the fur business. In total, our intention is to gather accurate data bout the industry and to provide a forum for fur farmers and furriers to rebut the anti-fur claims and for animal rights groups to explain the reasoning behind their actions.

Acknowledgements

Throughout the research for Furor Over Furs, we met much resistance from sources in both the fur industry and the fake fur industry. Few people replied to our fur industry surveys, and Polartech, once a major player in the fake fur industry, rudely turned us away. We feel that we need to pay special recognition to the people who were willing to help us research the fur industry and make this project possible.

We would like to thank the following people:

Furs by Michael -Ed, the salesman

Dittrich Furs

Dr. Daniel G. Gibson III -our advisor, mentor and friend

Table of Contents

List of Figures

List of Appendices

Introduction

While many people assume that the fur trade in North America is the result of modern fashion trends, the founding of the United States was based on the early fur trade. Between the mid-1500's and 1850, European fashion promoted the wearing of beaver fur hats. The fashion-driven beaver fur trade caused the beaver to become nearly extinct over most of Europe before the end of the 16th century. This forced hatters to find a new source of beaver fur, which was soon provided by the North American fur trade ("The Beaver Fur Hat"). Trade continued to thrive until the mid-1800's, at which time silk hats became more fashionable than beaver (Foster, "Fur trade").

Trade was not limited to just beaver: fox, marten, mink and otters were also trapped. When Europeans first began to explore North America, the Native Americans traded their furs for guns, tools, kettles and other items (Foster, "Fur trade"). "For one beaver skin a [Native American] trapper could buy a half pound of beads, [or] a kettle, [or] one pound of shot, [or] five pounds of sugar, [or] one pound of tobacco, [or] two awls, [or] twelve buttons, or twenty fishhooks ("History of the Fur Trade")." Europeans first began trading such items with the Abenaki (Algonkin tribe) of Maine (The Fur Trade: Its Impacts on Native America)."

The first group of Europeans to establish trading posts for furs was the French. Led by Samuel de Champlain in 1608, an exploration party set out along the St. Lawrence River. Quebec City was soon set up as a fur trading post, where Europeans could trade with the Huron and Ottawa tribes. The French continued to extend the fur trade by setting up forts along the Mississippi River. Farther down the Atlantic seaboard, English settlers began to trade with the Iroquois. Their trade route extended from Maine to Georgia, expediting the colonization of New England and Virginia (Foster, "Fur trade").

Trade expanded rapidly, and companies soon formed in order to regulate the trade more closely. The Hudson's Bay Company, founded in 1670, was one of the largest and most powerful firms. Established by English merchants, the company was soon granted exclusive trading rights in the Hudson Bay region by the English government (Foster, "Fur trade").

The English and French competed heavily for trading rights in North America and in 1754 the French and Indian War errupted over trade issues. Eventually, France's colonies were turned over to the English, and the war ended in 1763. Soon Russia became involved in the North American fur trade, and in 1799, the Russian-American Company was born (Foster, "Fur trade").

In 1810, John Jacob Astor became the first American to open a fur company, the Pacific Fur Company. Astor, a German immigrant

("Astoria"), had gained his wealth from the New York fur market, and he sought to expand his wealth in the American West (Flora, "Northwest Fur Traders"). He set out for the Pacific West, building Fort Astoria on the Columbia River. During the War of 1812, Astor sold his fort to his rival in the vicinity, the North West Company. The British eventually assumed ownership of the fort, renaming it Fort George ("The Fur Trade: 'Beaver Powered Mountaineering'").

Manuel Lisa, who traded with the Osage tribes, established the Missouri Fur Company of 1807. Lisa died in 1820, and his company dissolved. ("History of the Fur Trade"). Two years later, William Henry Ashley assembled the Rocky Mountain Fur company ("The Fur Trade: 'Beaver Powered Mountaineering'"). The fur trade soon turned west, but simply trading with Native Americans for pelts was not possible because western tribes were unfamiliar with fur trapping. Rugged colonists were hired to procure the furs, and they soon became known as "Mountain Men." These Mountain Men gathered annually at a **rendezvous**, giving them the opportunity to trade and sell their pelts (Foster, "Fur trade").

Soon the most valuable animals, and therefore their pelts, became sparse. Hatters began to employ silk instead of fur in making their hats around 1834. The beaver fur market, which had been a mainstay for the trade, began to plummet. "In the early 1830's, beaver was worth almost $6/lb in Philadelphia; by 1843 the

price was not even $3/lb" ("The Fur Trade: 'Beaver Powered Mountaineering'").

Europeans began to wear furs outside of their jackets in the 1840's, but this style was largely adopted by the upper class (Flemington Furs, "Fur Throughout History"). In the United States in the early 1900's, furs were in fashion, but not to the previous extent of the 1800's. Women began to trim their daywear garments with furs around 1910 ("Poiret and Eastern Influence-Women's Fashions of the 1910s"). Ten years later, the trim moved from daywear to nightwear ("Sheiks and Shebas-Women's Fashions of the 1920's") and "By [this time] all the college boys were wearing the popular raccoon coat, and some of the women were too ("History of Fashion: 1920-1930")." Flappers, a free spirited new style of the 1920's, "would [not] have been caught dead without a fur boa or mink (Flemington Furs, "Fur Throughout History")."

On October 24, 1929, the Wall Street Crash occurred, signaling the beginning of the Depression Era. Fashion was greatly influenced by the market, but the fur industry held on. During the 1930's, fur played a major role in fashion. It was worn both day and night, often seen in coats, capes, stoles and accessories. Mink, chinchilla, sable, silver fox, and Persian lamb were the most popular pelts ("History of Fashion:1930-1940").

The Second World War marked the largest drop in fur prices to date. "A change in women's fashion, which no longer featured

long-haired furs such as lynx or fox was largely responsible," although mink remained "extremely popular ("Soft Gold?-the Northern Fur Industry")." There was some revival of the fur industry in the mid-1960's, when dyed furs were popular material for mini-coats ("1960s Ladies Dress"), but the market fell again in the 1980's ("Soft Gold?-the Northern Fur Industry"). The fur market is currently regaining its former status as a growth industry.

Part One:

Fur and Related Environmental Concerns

There are two methods used to obtain animal pelts; one is raising the animals, but the oldest method is animal trappiing. Hundreds of years ago, simple snares were used to catch furbearers, but technology today has changed the trapping method. It is possible to choose a trap especially designed for a particular animal. Three types of traps on the market are conibears, leghold traps, and box traps.

Conibear, or body traps, are usually set under water. They can trap animals ranging in size from the muskrat to the beaver. The trap is designed to close on the animal as it tries to move through it. These traps can kill pets, and can also cause serious danger to a human if not carefully handled. The springs of a conibear are hard to set, but they are very strong, and usually "kill the catch quickly (Jamison, 1983)." Because of this, many states have required that the conibear must be set under water to avoid untargeted kills.

Leghold or foothold traps are widely used to trap small animals. The steel jaw trap, invented by Sewell Newhouse in 1823, is still the general design of the foothold trap today (Jamison, 1983). The trap is designed with two 'jaws' that shut around the animal's leg when the trigger is tripped. There are three kinds

of leghold traps: coilsprings, longsprings and undersprings. The coilspring trap is small, but powerful. "[A]s the name implies, [it] utilizes coil springs rather than flat springs for strength (Jamison, 1983)." It is compact, so the coilspring trap is often used as a hidden land trap. The longspring trap, on the other hand, is a bit larger and more suited for underwater trapping. It basic design is most similar to Sewell Newhouse's. The trap has one or two long flat springs that help to close the jaws of the trap quickly and tightly (Jamison, 1983). The underspring trap is designed with a bowed spring that causes the trap to jump up and catch the animal higher up on the leg (Jamison, 1983).

The least harmful trap is the box trap. The box trap is designed specifically to trap an animal alive. It is usually used when the animal is to be released in another area, but can be used to transport the animal when the trapper intends to skin the animal elsewhere (See Appendix E for tanning pelts).

Trapping animals for fur also has some environmental impacts. Certain populations of a species can soar, causing problems like starvation and disease. Regulating the population can help to maintain a healthy population, as well as to ensure that other populations remain balanced. Disease can travel from species to species, and conditions such as rabies, distemper, and heartworm can be transferred from an infected furbearer to a wild or domesticated animal. Charles Pils, from the Wisconsin Department

of Natural Resources states, "While trapping is not the solution to every wildlife disease outbreak, under certain circumstances it can reduce threats to the health of humans and domestic animals...by removing population excesses which promote diseases (National Trappers Association, Inc.)."

In Massachusetts, beaver trapping was restricted in 1996. The bill made it illegal to possess, use, sell or manufacture any trap that captured animals. Exceptions to the law were mousetraps, nets, and box traps (Laidler, "Question 1 takes aim at wildlife traps"). By 1999, the beaver population was estimated to be more than 50,000, almost double the number three years before. The rise in population has caused an increase in disease and local flooding ("Busy beavers love trap law").

In 1988, citizens of Chelmsford, Massachusetts voted to ban all animal trapping. By 1992, Chelmsford was experiencing problems due to the increased population of beavers that had been established over the four year long period, and town officials removed the trapping ban. One of the major reasons for the revocation of the trapping ban was that two town wells had been flooded and closed because of beaver dam flooding (Laidler, "Question 1 takes aim at wildlife traps"). In Massachusetts, the cost of beaver damage is estimated to be in the millions of dollars (Burns, "Hug a beaver? People just don't get nature").

Although trapping is one solution to the beaver problem, it is fairly expensive and often a temporary panacea. "[Massachusetts] State licensed...animal control agents charge anywhere from $100 to $500 a night to set traps and an additional $50 to $100 for each beaver caught (Tynan, "Beaver catchers in demand")." Comparatively, a beaver's pelt is worth about $25 in Massachusetts. Even if trapping is used, a new beaver family can move in to the area (Tynan, "Beaver catchers in demand").

Another solution to the beaver problem is to run drainpipes from the dammed water supply and fence off the area to prevent beavers from settling down. This, too, is an expensive solution to the problem. "Piping and fencing costs from $100 to $800 and more...(Tynan, "Beaver catchers in demand")," but the maintenance of these structures is high. James Allison, from Acton, Massachusetts, attempted to use drains to prevent his backyard from flooding, but the beavers plugged up the pipes, enlarging their dam (Hall, "State agency clouds the waters over beaver traps").

Another method used to obtain animal pelts is fur farming. Fur farming is a relatively new industry compared to trapping, although it has been around since the time of the Civil War ("Fur Farming in North America"). Currently, almost 85 percent of the fur industry is involves farmed furs, mainly mink and fox. About

eleven percent of the international fur farming industry is based in the United States ("Fur Trade Today").

Despite the large role that the United States plays in the international fur industry, the number of fur farms is decreasing. In 1988, there were 1,000 mink farms in the United States, but by 1997 the number was almost halved ("Warming up to Fur").

Each year, the USDA releases information about fur farms. The report for 1999-2000, found in Appendix C, provides information about the number of pelts produced, the color of pelts, what state the pelts are from, and some other pertinent information. According to the report released on July 20, 2000, "mink pelt production in the United States in 1999 totaled 2.81 million pelts" as opposed the "2.94 million" mink pelts produced in 1998 (from the July 22, 1999 report). Although there was a four- percent drop in production, the value of the pelts went up thirty percent, from 72.9 million dollars in 1998 to 94.8 million dollars in 1999. There was also an eight- percent decrease in the number of operating mink fur farms. According to the USDA report, the United States contained 404 mink fur farms, twenty-seven of which also raised fox. Fig. 1 is a table adapted from the 1998-1999 and 1999-2000 USDA reports detailing the mink fur industry from 1978 to 1999 ("Mink").

Finding specific details of the fur farm itself is a difficult task. One of the most in depth sources available most

Figure 1
Mink Pelt Production in the United States
(1978-1999)

Year	Number of Mink Farms	Thousands of Pelts Produced	Average Marketing Price (US Dollars)	Value of Mink Pelts (Million Dollars)
1978	1095	3358	39.30	132.0
1979	1105	3394	41.10	139.5
1980	1122	3501	35.30	123.6
1981	Data not available	Data not available	32.20	Data not available
1982	1116	4085	28.90	118.1
1983	1098	4137	29.90	123.7
1984	1084	4220	30.80	130.0
1985	1042	4171	28.00	116.8
1986	989	4096	41.30	170.0
1987	1027	4122	43.00	177.2
1988	1027	4453	32.30	143.8
1989	940	4604	20.40	93.9
1990	771	3366	25.50	85.8
1991	683	3268	21.90	71.6
1992	571	2900	23.80	69.0
1993	523	2620	34.10	89.3
1994	484	2623	33.00	86.6
1995	478	2803	53.10	148.8
1996	449	2783	35.30	98.2
1997	452	2993	33.10	99.1
1998	438	2938	24.80	72.9
* 1999	404	2813	33.70	94.8

*Preliminary Data

readily is *Fur Farming: A Book of Information on Raising Furbearing Animals for Profit* by A.R. Harding. The book contains detailed information about raising sixteen types of furbearers, and it also explains the maintenance of a fur farm.

Fur Farming suggests two types of housing for mink: the mink house and the individual pens set up. The mink house is much like a long cabin that contains sheltered pens, which is most desired in a cold climate. The house contains a center aisle, which is lined with pens on either side. Each pen is equipped with a sliding door, controlled by the farmer, which allows the mink to enter a dining area and a pen that is located outside of the house (Harding, 1985).

Individual pens are much easier to maintain but are also cleaner for the mink. They are built out of wire mesh and the tops are usually covered with tarpaper for protection from the elements. Nesting boxes are attached to the pens as a means of weather protection and a resting space. They are usually lined with grasses, feathers, or other soft materials. They are also used as a birthing area for the mink (Harding, 1985).

Harding suggests that each pen be raised up to eight inches off the ground to facilitate manure removal and raking of the bedding under the pen. In the event that the pen is allowed to sit on the ground, mink are more susceptible to disease from the bacteria that can grow from the manure. "Sanitation is [a] great

factor in successful mink raising...all necessary precautions should be taken to keep the mink and their surroundings clean (Harding, 1985)."

There are many different colors of mink pelts produced in the United States, ranging from brown, gray, blue, white and black. The black pelt was actually developed in North America ("Fur Farming in North America"). Pelts are not the only products that come off a mink fur farm; mink oil, animal feed and manure are also useful by-products of the industry.

There are only a few methods of euthanasia that are used on fur farms. The method certified by the Animal Welfare Committee of Fur Commission USA (FCUSA) for small animals is pure **carbon monoxide** or **carbon dioxide** bottled gas. The animals are placed in moveable, airtight containers that are already filled with the chosen gas. According to FCUSA, the animals are "immediately rendered unconscious and die without stress or pain ("Fur Farming in North America")." For larger animals, such as the fox, FCUSA and the American Veterinary Medical Association approves lethal injection. Lethal injection causes "instant cardiac arrest ("Fur Farming in North America")."

Mink can be pelted by the age of six or seven months (Harding, 1985). After the fur is removed from the mink carcass, the fat layer is used to produce mink oil that is utilized for cosmetics, hypoallergenic soaps, hair care products and leather

oils. The remaining portion can be processed to "become protein meal, a basic ingredient in pet and animal foods ("Fur Farming in North America").

Although manure can be a useful by-product of mink farming, it also has its drawbacks. When used appropriately, the manure can provide a nutrient rich source of natural fertilizer ("Fur Farming in North America"). Unfortunately, untreated manure can pollute the local water systems.

Mink manure is full of **nitrogen** and **phosphorus**. Nitrogen is produced during protein metabolism, and can be found as **ammonia**, **nitrate**, **nitrite**, and other forms in mink manure. Plants are able to use the nitrogen when it is converted to ammonium in the soil. If too much nitrogen is present, the nitrogen is converted to nitrate, which is easily washed into the ground water supply. Usually this can be remedied by using bedding or peat moss to soak up the urine and manure, preventing it from contaminating the water (Rouvinen, "Manure Management on Fur Farms").

Not only can water quality be affected by the nitrogen, but air quality is also a concern. Nitrogen that evaporates from urine usually is found in the form of ammonia, which can damage the local ecosystem. Using peat moss or bedding also helps curb this problem (Rouvinen, "Manure Management on Fur Farms").

The other chemical that could pose an environmental issue is phosphorus. Although "[p]hosphorus is essential for energy…and

proper formation of bones (Rouvinen, "Manure Management on Fur Farms")," the phosphorus in manure is usually found in the form of soluble inorganic salts. When the inorganic salts are washed into the water supply, it promotes algae and aquatic plant growth. This disruption in the environment can greatly effect the local ecosystem. One way to prevent phosphorus run off is to set up a "vegetation filter strip between the farming area and the water course (Rouvinen, "Manure Management on Fur Farms")."

Part Two:

The History of Animal Rights- The Organizations and the Cause

The current animal rights movement first began in England in 1822, when the first law was passed that prevented animal cruelty. Within two years, the Society for the Prevention of Cruelty to Animals was established as the first animal welfare organization. It was about forty years later that the animal rights movement was launched in the United States (Patterson, 1993).

Henry Bergh, United States ambassador to Russia during the Civil War, was the founder of the American Society for the Prevention of Cruelty to Animals (ASPCA). Established in 1866, the ASPCA became the first animal welfare society in the United States. Bergh also pressed the New York State Legislature to "pass a law that made cruelty to animals a criminal offense (Patterson, 1993)."

The number of animal rights and animal welfare organizations has increased since the 1800's. Some of these organizations are more aggressive then others, but they all have their independent ideals and goals. The Fund for Animals and People for the Ethical

Treatment of Animals are two of the largest organizations extant today.

The Fund for Animals

The Fund for Animals was founded in 1967 by author Cleveland Amory. The Fund's original goal was to provide opposition to "sport hunting, commercial trapping, and other egregious acts of cruelty to wild animals ("About The Fund")," but today they have spread their animal rights objectives to all animals, both wild and domesticated.

The Fund for Animals is adamantly opposed to the fur industry, trapping and farming included. The Fund's standpoint on trapping is that it is cruel and environmentally disadvantageous. They note that animals that are trapped are not always immediately killed, and that "abrasions, torn ligaments...broken bones...broken teeth, oral injuries..." and self-mutilation often occur (The Fund for Animals, "Fund Facts: The Bloody Business of Fur"). The Fund also explains that it is impossible to ensure that only target animals are trapped, and that 'trash' animals such as golden eagles, domestic pets, caribou and moose can also be accidentally killed or injured.

The Fund for Animals maintains that the trapping industry does not help control disease in wild animals, and that the trapping industry is actually the cause of the epidemics. "Fund

Facts: The Bloody Business of Fur" includes a quote from *The Rabies Monitor* that states "Population reduction often causes wildlife populations to expand rather than decline. Studies show decimated susceptible wildlife populations rebound in the next breeding season, setting up a new cycle for rabies outbreaks."

Fur farming is also another important issue for the Fund for Animals. They consider fur farms "concentration camps for furbearers," and the conditions in which animals live to be inadequate. "It is not rare…to have animals lying in their fecal matter or to have animals with toes frozen to cold wire mesh during winter ("Fund Facts: The Bloody Business of Fur")." The Fund also explains that some of the animals on the fur farms are subject to inbreeding, which causes them ailments ranging from sensory malfunction to crippling ("Fund Facts: The Bloody Business of Fur"). In addition, the Fund explains that since there is no government regulation for fur farms, animals can be cruelly put down. "Some ranchers break the furbearers' necks…anally electrocute them or poison them with **strychnine** or **cyanide**…or gas animals with unfiltered or uncooled carbon monoxide or carbon dioxide-usually from an automobile exhaust pipe ("Fund Facts: The Bloody Business of Fur")."

Environmental issues are also a concern of the Fund for Animals. The Fund sites one study, by Ford Motor Company's Gregory H. Smith, demonstrated that fake fur is more energy

efficient than animal fur. Smith determined that it takes four times more energy to manufacture one farmed fur coat than it takes to make a fake fur coat. He also found that if all the energy used to raise and acquire the fur on a farm was summed, sixty-six times more energy was needed to produce a fur coat than a fake fur coat. The Fund also notes that some of the chemicals used to prepare the furs for sale can be dangerous for the environment. Including **chromium** and **formaldehyde**, these chemicals can drastically impact the waterways and local environment ("Fund Facts: The Bloody Business of Fur").

People for the Ethical Treatment of Animals (PETA)

People for the Ethical Treatment of Animals is based in Norfolk, Virginia. It was founded in 1980, as an animal rights organization. PETA's basic conviction is "that animals are not ours to eat, wear, experiment on, or use for entertainment ("Our History")." According to "Our History," PETA has taken a few measures to stop animal cruelty in the fur industry. They managed to stop a California furrier from electrocuting chinchillas by attaching wires to their genitals. PETA also discovered that another Unites States fur farmer was using weedkiller as a poison for minks, and that practice was also ended.

PETA often uses demonstrations and brochures to inform the public about their cause. In a letter sent out to interested and prospective PETA activists, the following anti-fur protesting methods were suggested:

1) Educate the public with an information table in front of your local fur salon or department store or on a busy street corner. PETA's Literature Department can provide you with the hard-hitting posters and leaflets you need to help save the animals.

2) Organize a fur funeral in your hometown. Build a cardboard coffin and fill it with shreds of old furs (available from PETA). Have four activists in skeleton masks and dressed in black carry the coffin from a church or cemetery to a fur store or center of town. If you have additional people who can help, have them dress in black with skeleton masks, ringing bells and holding a banner reading, 'Fur Is Dead.'

3) Bare your skin to help save animals. Get behind a banner reading, 'We'd Rather Go Naked Than Wear Fur,' and take it to the streets. This is an attention-getter and a great way to let the public know that, even though you are 'naked,' your heart is warm because you don't wear fur.

4) Speak out for the animals! Grab a couple of friends, posters, and fur cards and hit the streets, letting those who are wearing fur know how you feel about animal cruelty. Some of the best places to find fur-wearers are outside the theater or shopping mall or on the busy streets of your hometown."

PETA also has order forms for anti-fur materials.

Further information about animal rights groups and their contact information can be found in Appendix F.

Part Three

Human Rights:

Putting People First

Putting People First is an animal welfare organization that focuses on campaigning against animal rights organizations and activists. Putting People First is "dedicated to preserving the rights of people to own and use animals and other resources humanely and responsibly." Kathleen Marquardt, one of the co-founders of Putting People First, wrote a book outlining some of the views of Putting People First.

She remarks that this was not an easy task, and in the acknowledgements section of her book states, "Thanks to Al Regnery for the courage to publish this book, deemed not 'politically correct' by other publishers. The authors have the honor to have written the first book ever to have generated hate mail to Regnery even before publication." Given this statement, it is easy to see why many furriers do not speak out against animal rights accusations.

In Marquardt's chapter on animal rights groups, she points out some of the more active organizations. Marquardt considers the Animal Liberation Front (ALF) to be one of the "hard core" organizations. "The United States branch of ALF is thought to have been formed in 1982. It has been designated a terrorist group by the FBI (Marquardt, 1993)." Members of the group have

been known to burglarize and sabotage as part of their animal rights tactics (Marquardt, 1993). ALF publishes an animal rights journal, *Earth First.* The journal provides members and supporters of ALF with suggestions for 'direct action' tactics to protest the fur industry. Tactics against fur farms include releasing animals and spraying the animals fur in order to ruin the pelt, and it is suggested that activists can target fur stores by "gluing the locks, spray painting the merchandise, and etching the windows (Marquardt, 1993)."

The Fund For Animals (FFA), previously mentioned in Part Two, is also discussed in *Animal Scam.* According to Marquardt, the Black Beauty Ranch that is operated by the FFA is supposed to be a sanctuary for rescued animals. Instead, the FFA has been caught breeding the animals and then "selling the offspring for slaughter (Marquardt, 1993)."

Animal rights groups have been known to use propaganda in order to convince people to become activists or donate money. In 1965, a film, *Les Phoques de la Banquise*, distributed by the Artek Film Company, is just one example. The film, according to Marquardt, shows "men clubbing harp seal pups with hakapiks, bleeding them out, and skinning them...it showed the animals' bodies writhing in reflexive postmortem spasms (Marquardt, 1993)." *Les Phoques* also showed pups lying face up with their eyes open. The scene had pup voices dubbed into it, "giving the impression that

the pups were still alive and conscious, writhing in their own blood (Marquardt, 1993)." Yet another scene portrayed a conscious seal being skinned alive (Marquardt, 1993).

Four years later, the Canadian House of Commons held hearings to investigate the videotaped 'incident.' As it turned out, the man who was filmed skinning the live seal was paid by the film-makers to do it. He testified that the attempt of the director was to make a 'dramatic point.'

In addition, Marquardt claims that the anti-trapping industry also uses propaganda as part of its activism tactics. It is common to see photographs of domesticated animals caught in traps, "with mangled and broken limbs (Marquardt, 1993)." These photographs are generally faked, using animals that have been previously deceased, usually as road-kill.

Animal rights activists also oppose fur farming, but Marquardt feels that these views are also unfounded. Although many organizations claim that farmed animals are not raised well, "[t]he high economic investment [by the farmers] ensures that furbearing animals are well cared for (Marquardt, 1993)." Obviously, a well-fed, healthy animal will have a shinier, more valuable coat.

Finally, *Animal Scam* points out that animal rights groups oppose the methods of euthanasia used on the animals. Carbon monoxide, carbon dioxide, and lethal injection are all methods

approved by the American Veterinary Medical Association, and are certified by use by the Fur Farm Animal Welfare Coalition. These methods are used at animal shelters, some of which are run by animal rights organizations, but still they disdain these euthanasia methods (Marquardt, 1993).

Part Four

Fake Fur

Fake, or faux, fur seems to be one of the few areas of the fur industry that draws little controversy, but it is rarely mentioned as a mitigation of fashion and animal rights disagreements. Fake fur is a man-made fiber that not only has the ability to look like animal fur, but it is cited to be more energy efficient (see Part Two). Fake fur is made out of two types of **acrylic** materials: high-shrinkage and low-shrinkage fibers. The high-shrinkage and low-shrinkage fibers are woven together, and then exposed to some form of heat. The heat causes the high-shrinkage fibers to "shrink and cause the other fibers to 'buckle' thus creating bulk (Hollen and Saddler, 1968)." In fur like fabrics, the shrunken fibers simulate the soft undercoat fibers, while the low-shrinkage fibers simulate the outer guard hairs.

At this stage of production, the material does not particularly resemble real fur. The fur-like look is attained by some additional processing of the fur. First, all of the fibers that are loose must be removed from the surface of the fabric. This is done by tigering, or running wire brushes over the fabric. Then, the material is sheared by mower-like helical knives that trim the fabric to a realistic height. The material is next

electrofied, that is, subjected to a grooved, heated cylinder that is run over the fibers to add some luster. Wet chemicals, such as silicones and resins, are applied to the fabric to smooth out the fibers, and the electrofying process is repeated. Finally, a second shearing is performed in order to remove any additional loose fibers that the processing created. At this point, the fabric is finished, unless embossing is to take place (Corbman, 1975).

Embossing is used when the desired material imitates curled furs, like Persian lamb. To attain this look, the fabric is run through a machine that uses rotating wire brushes to "deform the lay of fibers" and "cause variations in light reflection (Corbman, 1975)." The curled look is finished when the material is "passed under heated embossing steel rollers that are cut to resemble the natural curl of the fur...The curl is permanently heat-set into the fabric (Corbman, 1975)."

Sometimes, the fake fur looks so real it's hard to tell the difference. The following are methods that the World Animal Net suggests to determine if a questionable fur is real or fake:

Feel: Roll hairs between fingers.

Real: easily rolls and feels soft and smooth

Fake: feels coarse when it rolls.

Look: Blow on hairs so they separate.

Real: have many different layers of different types of hair. Also, at the base of the hairs, leather is visible.

Fake: fewer types of hair, all of the hair is the same color.

Pin Test: Slide a pin through the base of the material.

Real: pin is hard to push through

Fake: pin is easy to push through

Burn Test: Pull a few hairs from material and hold them to a flame.

Real: singes, smells like burning human hair

Fake: melts like plastic, forms little balls that are small and hard.

It is interesting to note that some animal rights organizations such as PETA disapprove of any fake fur that does not "scream 'fake' (Howard and Koehl, "The Skinny on all Those Fake Furs")." Some animal rights organizations also state that fake furs are not necessarily better for the animals because

textile production can pollute waterways and use fossil fuels in a manner that can damage the environment.

Part Five:

Both Sides

With all of the information available relating to the fur industry, it is often difficult to determine what is factual information and what is rival propaganda. "Furor Over Furs" is an attempt to set aside some of the emotions that can cloud fact, and present both the views of a furrier and an animal rights activist as precisely as possible. Needless to say, gathering this information has often been difficult, and determining what is fact, and what is embellishment, and what is fiction has not always been easy.

News media often play an important role in determining what views of the industry the public readily sees. Often, it seems, activists are given more of a voice than furriers. In addition, there are a number of animal rights organizations which are willing to share their views and their information, but it is rare to find a furrier willing to talk about his opinion of the industry. To give the furriers their chance to relate their views, we conducted a written survey, and contacted the Fur Information Council of America.

The survey consisted of two separate questionnaires, one for fur farmers, and the other for fur salespeople. It was necessary

to design two sets of questions because both farmers and salespeople see different sides of the industry. To help promote a positive response from the fur industry, we included an introductory letter informing the recipients of the purpose of our project, and we also set up the replies with return postage. At his request, we enclosed our advisor's business card so that potential respondents could independently confirm our intentions by calling or faxing Dr. Gibson.

In addition, we made the survey completely anonymous so that the furriers would feel comfortable answering questions that they could possibly be intimidated by. A problem with the anonymity feature was that we would not necessarily be able to ascertain where the furriers were located, so we marked the initials of the state on the return post card. Both the letters of intention (Fig. 2-Fig.4) and sample questionnaires (Fig. 5-Fig.6) can be found in the following pages.

The survey for fur farmers was sent out to fifteen fur farms in the United States. Fur farms are especially hard to locate, and despite the relatively large number reported by the USDA, those were all that research uncovered. Unfortunately, none of the fur farms that we mailed our materials to responded to our questionnaire.

The fur salesperson survey was sent out to one hundred United States furriers. Fur sales locations are much easier to locate,

Figure 2

20 January 2000

[Name of Company]

To Whom this May Concern:

We are students at Worcester Polytechnic Institute, working on a research project that involves the topic of animal rights in the fur industry. This project is based primarily on factual information. We hope that you will be able to help us by providing us with information that relates to the fur industry. The information that we are specifically concerned with, but not limited to: laws that pertain to animal rights, treatment of the animals on fur farms (living conditions, execution methods, etc.), and any other information that you feel might be pertinent for our research.

Thank you for your time and cooperation.

Sincerely,

Bryan Padovano

Katrina Vaitkunas

Please send information to:

Katrina Vaitkunas
WPI Box 2862
100 Institute Rd
Worcester, MA
01609

Figure 3

20 January 2000

[Name of company]

To Whom this May Concern:

We are students at Worcester Polytechnic Institute, working on a research project that involves the fur industry. This project is based primarily on factual information. We hope that you will be able to help us by providing us with information that relates to the fur industry. We are interested in how the animals are raised, fed, sheltered, terminated, etc. Any information that you feel would be pertinent to our project would be greatly appreciated.

Thank you for your time and cooperation.

Sincerely,

Bryan Padovano

Katrina Vaitkunas

Please send information to:

Katrina Vaitkunas
WPI Box 2862
100 Institute Rd
Worcester, MA
01609

Figure 4

20 January 2000

[Name of Company]

To Whom this May Concern:

We are students at Worcester Polytechnic Institute, working on a research project that involves the fur industry. This project is based primarily on factual information. We hope that you will be able to help us by providing us with information that relates to the imitation fur industry. The information that we are specifically concerned with, but not limited to are: ways that natural looking fake fur is made, durability of the fake fur, the market for fake fur, etc. Any information or samples that you could provide us with would be wonderful.

Thank you for your time and cooperation.

Sincerely,

Bryan Padovano

Katrina Vaitkunas

Please send information to:

Katrina Vaitkunas
WPI Box 2862
100 Institute Rd
Worcester, MA
01609

Figure 5

1) How long have you been in the fur business?

2) Approximately how many furs do you produce a year?

3) What kinds of animals do you raise? Approximately how many of each kind are raised on your farm?

4) Do you sell furs to domestic or foreign companies (or both)?

5) What methods do you use to put the animals down?

Do you recycle any of the remains of the animals?

6) Have you ever encountered any problems with animal-rights activists? Yes / No Please explain.

Please return to the address on the backside, or fax to (508) 754-4144 attn: Bryan
If you are faxing our answers, please indicate from which state you are replying.

Figure 6

1) How long have you been in the fur business?

2) Approximately how many furs do you sell a year?

3) What kinds of fur do you sell?

   What furs sell best?

   Do you sell fake furs? Yes / No If yes, what is the ratio of fake furs Sold to real fur sold?

4) Who supplies you with your merchandise?

   Do you buy furs from just U.S. companies or foreign companies? Please approximate numbers of both.

5) Have you ever encountered any problems with animal-rights activists? Yes / No Please explain.

Please return to the address on the backside, or fax to (508) 754-4144 attn: Bryan.
If you are faxing your answers, please indicate from which state you are replying.

and almost every state has at least one furrier in its yellow page listings. We received two replies, and anonymous one from a furrier in Wisconsin and the other from Dittrich Furs in Detroit, Michigan.

A copy of the anonymous reply is included (Fig. 7). Our reply from Mr. H. Jason Dittrich, with Dittrich furs, merits some additional attention. Mr. Dittrich answered our survey with an informative and concise reply, and also suggested some other resources that we might find useful. Mr. Dittrich's reply shown in Figure 8.

Figure 7

1) How long have you been in the fur business? Ugent Furs 1922

2) Approximately how many furs do you sell a year? 300

3) What kinds of fur do you sell? ALL TYPES - most important — MINK BEAVER RACCOON FOX

What furs sell best? MINK, BEAVER, RACCOON, FOX

Do you sell fake furs? (Yes) No If yes, what is the ratio of fake furs Sold to real fur sold? SOLD ABOUT 25 FAKE FUR COATS

4) Who supplies you with your merchandise? FUR MANUFALTURERS FROM NEW YORK, MONTREAL, PARIS, MILAN, HONG KONG

Do you buy furs from just U.S. companies or foreign companies? Please approximate numbers of both. 50% US 50% FOREIGN

5) Have you ever encountered any problems with animal-rights activists? (Yes) No Please explain. VERY MINOR PROTEST

Please return to the address on the backside, or fax to (508) 754-4144 attn: Bryan.
If you are faxing your answers, please indicate from which state you are replying.

Figure 8

1) How long have you been in the fur business?
Dittrich Furs is a family retailer which originally began as a wholesaler in 1893. We became solely a retail store by 1920. We are officially the oldest family owned business in Detroit.

2) Approximately how many furs do you sell per year?
Approximately 1500 to 1800 units. This includes everything from full-length garments to hats and accessories.

3) What kinds of furs do you sell?
Most everything that that is available and marketable.
Full length coats to short bolero jackets, hats, headbands, skirts, vests, etc. Fur-trimmed leather garments coats/jackets, jeans and even shoes.
As far as types: Mink, fox, beaver, raccoon, coyote, fitch, lynx, sable, fisher, martin, chinchilla, rabbit, lamb shearling, muskrat, opposum, sciurus (squirrel)

What furs sell best?
Generally mink, fox and beaver.

Do you sell fake furs?
No. The reason for this is to retain our reputation as experts in the specific field of fur.

4) Who supplies you with your merchandise?
Approximately 50-60 vendors from around the world.

Do you buy furs from just U.S. companies or foreign companies?
Vendor Approximation: US 70% Canada 20% Hong Kong and other 10%
In recent years the number of vendors we use from the orient is increasing and this is expected to continue.

5) Have you encountered any problems with animal-rights activists?
Yes. Minor problems, more or less considered a slight inconvenience or nuisance. Minor vandalism. About one protest per year that usually consists of about 5 protesters in the 14 – 18 year-old range and 1 or 2 college age participants going through your usual "identity crisis". (In other words, potential customers, eventually, but not our target market. And not a great influence on our existing customer base)
As an example, we have customers ask us on occasion whether or not they need to worry about someone spray painting their coat. In actuality there were only about 3 incidences of this in the late 80's. One in New York and 2 that I know of in Paris.
As far as hurting the industry their affect is negligible. If anything they are having a positive influence on fur sales at this point. A common quote from new customers is "I want to buy a fur coat to spite those activists, no one's going to tell me what to eat and wear and what not to."
The fur industry is a "luxury market" which, for the most part parallels the jewelry and automobile industries. Our worst enemy is a recession and our biggest competitor is investing

On April 18, 2000, we also visited Furs by Michael, a local furrier, to interview one of their fur salesmen. Ed, the salesman, eager to meet us because he wanted to be able to "put a different spin" on the fur industry. Ed began by explaining that 'Michael' has been in Worcester for 44 years, and that it had been owned and operated by the family for two generations. Furs by Michael is the only fur salon in New England, specializing in sales, storage, cleaning, and repairs. Occasionally, garments are also created on site, if a local trapper or hunter provides the furs.

Ed displayed various pieces in 'Michael's' stock, explaining that most of the items are pre-sewn garments, made from the pelts of ranched animals. All of the products that they sell are handmade in order to promote craftsmanship and quality. The best-*selling* fur at 'Michael's' is mink, but the majority of their business is fur maintenance and storage. One of the reasons that Ed believes that mink is popular is because it is "lightweight, sleek, and has natural coloration."

When asked if Furs by Michael had ever experienced problems with animal rights activists, Ed told us that there are occasional protests, but that no major problems have ensued. He explained that the store does necessarily mind the protests as long as they are peaceful and "they don't hurt my customers."

We also tried to contact some fur textile companies to hear about their side of the fur industry. We wrote to twenty United States textile companies, asking them to help us find information about the fake fur industry, and we did not receive any responses at all. Malden Mills, a local textile factory, was once a large supplier of fake furs, so we called them to see if we could arrange a tour of the mills and speak with someone about fake fur production. We spoke to three different people, all of whom gave us indefinite answers, and were, in general, unwilling to help.

Animal rights activists, on the other hand, were extremely eager to provide us with information about their views of the fur industry. We contacted twenty-one animal rights organizations, asking them to provide us with information concerning the fur industry. We received a response from seven organizations.

Conclusion

It is difficult to determine the truths and myths of the fur industry. Since anti-fur activists provide most of the attainable information, the weight of the verbiage about the fur industry is negative. Additionally, there have been instances when animal rights activists have used propaganda in order to sway beliefs.

Media focuses on negative, eye opening accounts of the industry because a gritty story often sells, so stories of mistreated animals are usually the ones reported. But, in general, a furrier's goal is not to participate in cruelty to animals. Not only would this lower the furrier's income, but it would continue to fuel the animal rights industry.

Animal rights organizations are extremely active, so it is easy to see why many furriers stop short of standing up for their industry that is deemed 'politically incorrect', by some, as Kathleen Marquardt stated in her book, *Animal Scam*. Furthermore, there are many instances when furriers and other fur industry members have been sabotaged and attacked or threatened. Appendix G contains a timeline of some of the more destructive acts.

It is reasonable to promote the health and humane treatment of animals, whether in the fur industry or elsewhere. Yet, animal rights organizations should not use violence to impede the fur industry. This may bring some media attention to their cause, but

it will not necessarily gain supporters. Ideally, fake fur seems that it would not only supply the look and sensation of fur, but also aid the animal rights activists in their cause. If fake fur were to become haute coiture, many furriers would adopt the new product and fur farmers, trappers and activists would become unemployed.

Our greatest disappointment was the mysterious nature of the energy consumption survey by Gregory H. Smith. Although it was referenced in a few animal rights pamphlets that we received, it was impossible to locate. In our attempts to locate the piece of literature (since we did not know if it was an article, book, thesis, etc.), we contacted The University of Michigan Press and the Fund For Animals, as well as searching Ford Motor Company's web site. It would have been interesting to see all of the data that the literature reported, as it would have played a major role in our research.

In conclusion, it is unrealistic and unfair to ask furriers and other fur tradespeople to give up their livelihood. Many of the people involved in the fur industry have a family history that revolves around animal fur and its trade. Some of the methods used in the fur industry have been passed down over the years, and without the people who still practice trapping, tanning, and even fur farming, the art would be lost. It is important to recognize that animal rights activists can and do serve a useful function in

monitoring an industry so diverse in its sophistication, from individual trappers to large fur farms. Without people looking out for the wellbeing of animals, it is possible that animal welfare could be brushed aside in order to make money.

Appendix A

Chemicals

Acrylic fiber is a synthetic polymer produced from acrylonitrile ($-CH_2CH(CN)-$) units. Usually the fumes that result from the synthetic process are toxic and the fibers are combustible (Lewis, 1993).

Alder-bark is the bark of a tree in the birch family that is often used in dying and tanning (Webster, 1965).

Aluminum sulfate ($Al_2(SO_4)_3$) is a white crystaline salt that is sweet to the taste. It is usually made by reacting sulfuric acid with aluminum oxides. Aluminum sulfate can be used in paper making, as a foaming agent in fire extinguishers, for fireproofing cloth, for tanning leather, for water purification, and as a food additive (Lewis, 1993).

Ammonia (NH_3) is a colorless gas or liquid that is lighter than air and has an extremely irritating odor. It can be obtained from the decomposition of urea, but can be synthetically made from a miture of carbon monoxide, hydrogen, carbon dioxide, and atmospheric nitrogen (Lewis, 1993). In animals, ammonia can be toxic in high levels, causing malfunction in the central nervous system and an eventual comatose condition (Garrett & Grisham, 1999). Ammonia can be used as a fertilizer, refrigerant, dying agent, yeast nutrient, and in rocket fuel, explosives and synthetic fibers. "Ammonia is the first complex molecule to be identified in interstellar space. It has been observed in galactic dust clouds

in the Milky Way and is believed to constitute the rings of Saturn (Lewis, 1993)."

Ammonium alum (aluminum ammonium sulfate) ($Al_2(SO_4)_3(NH_4)_2\ SO_4$) is a colorless, odorless strong tasting crystal. It is often used in dying, tanning leather, fur treatment, water and sewage purification, and as a food additive (Lewis, 1993).

Carbon dioxide (CO_2) is heavy, colorless gas. It is produced through respiration and fossil fuel combustion (Zumdahl, 1998). Carbon dioxide is the form of carbon that plants use to form organic (carbon-based) compounds during photosynthesis (Lewis, 1993). Air generally contains about 0.03% carbon dioxide by volume. At concentrations between 0.1-1% typically cause headaches. At concentrations around 8-10%, asphyxiation occurs, causing death. Higher concentrations are extremely toxic. This is due to the fact that at high concentrations of carbon dioxide, the hemoglobin in the blood holds less oxygen(Williams and Lansford, 1967). Its other uses include making carbonated beverages, extinguishing fires and water treatment (Lewis, 1993).

Carbon monoxide (CO) was discovered by Joseph Priestly in 1799 (Lewis, 1993). It is an odorless, colorless, toxic gas or liquid that burns with a purplish flame. It is produced by incomplete combustion of organic (carbon-based) fuels, as occurs when oxygen levels are inadequate for total combustion (Zumdahl, 1998). It is mostly given off in the exhaust of vehicles, making it one of the most common air pollutants (Frick, 1982). Carbon monoxide binds to the iron of hemoglobin in the blood, displacing the oxygen bound to the hemoglobin. Then, tissues, such as the brain, suffer anoxia (permanent damage due to lack of oxygen). Subsequently, the brain looses control of respiratory function, and the heart

shuts down from lack of oxygen. Carbon monoxide can only enter the body through the alveoli in the lungs, and to counteract the effects of carbon monoxide poisoning, pure oxygen can be administered. For extreme exposure to carbon monoxide gas, either death will occur within 36 hours, or complete recovery will occur. The only remaining damage from the carbon monoxide would be the anoxia brain damage (Williams and Lansford, 1967).

Chromium (Cr)is a hard but brittle grayish metal. Chromium is available as metallic lumps, crystals, granules or powder (Lewis, 1993). Divalent chromium is relatively unstable because it is easily oxidized (Williams and Lansford, 1967). Hexavalent chromium and its compounds are known carcinogenics and tissue corrosives (Lewis, 1993). Trivalent chromium is the physiologically active form of chromium. This form of chromium is used in the tanning process (Williams and Lansford, 1967). Chromium can be used as an anti-corrosive agent and is sometimes used in the manufacture of inorganic pigments (Lewis, 1993).

Copperas (ferrous sulfate) is a greenish or yellowish brown crystal. It is soluble in water, has a saline like taste, and is odorless. The ingestion of copperas causes intestinal disorders. It is used as a herbicide, fertilizer, feed additive, engraving agent, and in waste treatment (Lewis, 1993).

Cyanide (CN-) is known as a respiratory inhibitor (Zumdahl, 1998). Cyanide does not react with the hemoglobin in the blood, like carbon monoxide and carbon dioxide. It poisons the body by inhibiting cytochromes, thereby attacking the central nervous system, causing hypoxic convulsions. Death is caused by respiratory arrest, although the heart usually continues to beat after breathing stops. Within the first few minutes of exposure

to the poison, its affects can be seen, and death generally results within one hour. If the levels of cyanide are not large enough to be fatal, a complete recovery is seen (Williams and Lansford, 1967).

Formaldehyde (CH_2O), one of the only organic compounds known to exist in outer space, is a gas with a strong, pungent odor. Formaldehyde is moderately flammable, and is toxic if inhaled. It is also known to be a carcinogen (Lewis, 1993). Its use as a fixative stems from its affinity for the amino acid groups in proteins (Gibson). It is also used in fertilizers, disinfectants, embalming fluids, preservatives, treatment of textile fabrics, plywood, particle board, and in foam insulation (Lewis, 1993).

Kerosene is a clear, oily liquid with a strong odor. It is obtained from the distillation of petroleum. It is toxic if large amounts are inhaled, and is flammable. Kerosene is often used as rocket and jet engine fuel, heating fuel, and an organic solvent (Lewis, 1993).

Logwood (hematoxylin) ($C_{10}H_{14}O_6$) is a yellowish crystal that is a possible carcinogenic. It is used in biological stains and as a colorant in inks (Lewis, 1993).

Nitrate ($-NO_3$) is used in the nitration of organic substances for explosives, plastics and dyes **(Little & Ives, 1306)**. Many bacteria and fungi are able to reduce nitrates into ammonia or even nitrogen gas (Williams and Lansford, 1967).

Nitrite ($-NO_2$) is formed from the reduction of nitrate. Indication of the presence of a nitrite is given by the appearance of brown

fumes on treatment with dilute sulfuric acid **(Little & Ives, 1308)**.

Nitrogen (N_2) is found a colorless, odorless, tasteless, gas that makes up approximately four-fifths of the air. As a liquid, it is colorless and un-reactive. Nitrogen is noncombustible and can be used as an asphyxiant. Its uses range from the manufacture of explosives to cryogenic preservation (Lewis, 1993).

Phosphorus (P) is an essential food element for many algae. High levels of phosphorus are usually responsible for the eutrophication (over growth of plant life, causing the body of water to slowly turn into a marsh and then disappear) of bodies of water (Frick, 1982).

Potash-alum (aluminum potassium sulfate) ($Al_2(SO_4)_3K_2SO_4$) is a noncombustible white, odorless crystal. It is used in dyeing, waterproofing agents, water purification, baking powder, and as a cement hardener (Lewis, 1993).

Strychnine ($C_{21}H_{22}N_2O_2$) is a bitter hard white crystal or powder. It is taken from the seeds of *Nux vomica* by a method using acetic acid, filtration, and precipitation. Strychnine is toxic by both ingestion and inhalation, and it is most commonly used as a pesticide (Lewis, 1993).

Sulfuric acid (H_2SO_4) is one of the most widely used chemicals in the United States. It is a dense, oily liquid that is extremely corrosive. Its color can range from colorless to dark brown, and it readily dissolves most metals. Sulfuric acid is used in fertilizers, dyes, and industrial explosives (Lewis, 1993).

Verdigris (basic copper acetate) is found as silky crystals with a pale green or bright blue color. It tastes coppery, and is used as a paint pigment, insecticide, fungicide, and dyeing agent (Lewis, 1993).

Appendix B

Glossary

Animal rights is the philosophical idea that there is no justification for treating animals as if they were nonhuman (IFAW).

Animal welfare is the practice of ensuring that animals are treated humanely with out questioning the justification of using animals (IFAW).

Chrome tanning is the process of using chrome to turn animal hides into leather (Frick, 1982).

Dyeing is the chemical coloration of a material. This is done by bonding a dye with a fiber to attain the desired result (Kadolph et al., 1993).

Guard hair is the long outer hair that protects the shorter underfur of a pelt.

Rendezvous is an annual meeting held in the Rocky Mountains during the 1800's. It was designed to promote the trade of animal pelts by mountain men and merchants.

Shearing is the process of cutting fur to a shorter, more uniform hair length. It is also the term for cutting the pile or surface of a material to an even level (Kadolph et al., 1993).

Tanning is the process in the production of leather that is used to prevent the rotting of an animal hide or skin (Kadolph et al., 1993).

Underfur is the shorter hair that is protected by the guard hair and provides the insulation.

Appendix C

USDA Report on Mink Farming

Lv Gn 3 (7-00)

Mink

National Agricultural Statistics Service
USDA
Washington, D.C.

Released July 20, 2000, by the National Agricultural Statistics Service (NASS), Agricultural Statistics Board, U.S. Department of Agriculture. For information on "Mink" call Tom Kruchten at (202) 690-4870, office hours 7:30 a.m. to 4:00 p.m. ET.

Pelt Production Down 4 Percent

Mink pelt production in the United States in 1999 totaled 2.81 million pelts, down 4 percent from 1998. Wisconsin, the major mink producing State, produced 731,700 pelts.

By color class, the number of pelts as a percent of the total U.S. production follows: Standard - 37.9 percent; Mahogany - 25.6 percent; Gunmetal - 16.3 percent; Ranch Wild - 6.1 percent; Demi-buff - 3.8 percent. The remaining color classes accounted for 10.3 percent.

Value of Pelt Production Up 30 Percent

Mink pelts produced during the 1999 crop year were valued at $94.8 million dollars, up 30 percent from $72.9 million a year ago. The average price per pelt for the 1999 crop year was $33.70, up from $24.80 in 1998.

Females Bred Down 2 Percent

Female mink bred to produce kits in 2000 totaled 660,400, down 2 percent from the previous year.

Percent of total females bred to produce kits in 2000 by color class are: Standard - 38.5 percent; Mahogany - 23.7 percent; Gunmetal - 17.4 percent; Sapphire - 5.0 percent; Ranch Wild - 4.8 percent;. The remaining color classes accounted for 10.6 percent.

Number Of Mink Farms Down 8 Percent

There were 404 mink farms producing pelts in 1999, down 8 percent from a year ago. Leading States were Utah with 110 farms, Wisconsin with 82 farms and Minnesota with 40.

Fox

There were 27 mink farms which also raised fox in 1999, down from 31 the previous year.

Mink: Pelts Produced and Females Bred, by Color Class, United States, 1998-00 1/

Color Class	Pelts Produced 1998 2/	Pelts Produced 1999	Females Bred to Produce Kits 1998 2/	Females Bred to Produce Kits 1999 2/	Females Bred to Produce Kits 2000
			1,000		
Standard	1,191	1,067	304	266	254
Ranch Wild	175	172	43	39	32
Demi-buff	116	106	36	26	23
Pastel	34	41	9	10	13
Pale Brown	1	1	0	0	1
Sapphire	137	141	40	37	33
Gunmetal	453	459	127	113	115
Mahogany	728	719	152	155	157
Pearl	23	32	4	9	11
Lavender-hope	6	9	2	2	2
Pink	2	3	1	1	1
Violet-type	26	9	5	5	2
White	44	52	11	11	17
Misc. & Unclassified	5	2	1	2	0
US	2,938	2,813	733	673	660

Mink: Farms, Pelts Produced, Price, and Value,
United States, 1979-99

Year	Mink Farms	Pelts Produced	Average Marketing Price	Value of Mink Pelts
	Number	1,000	Dollars	Million Dollars
1979	1,105	3,394	41.10	139.5
1980	1,122	3,501	35.30	123.6
1981	3/	3/	32.20	
1982	1,116	4,085	28.90	118.1
1983	1,098	4,137	29.90	123.7
1984	1,084	4,220	30.80	130.0
1985	1,042	4,171	28.00	116.8
1986	989	4,096	41.30	170.0
1987	1,027	4,122	43.00	177.2
1988	1,027	4,453	32.30	143.8
1989	940	4,604	20.40	93.9
1990	771	3,366	25.50	85.8
1991	683	3,268	21.90	71.6
1992	571	2,900	23.80	69.0
1993	523	2,620	34.10	89.3
1994	484	2,623	33.00	86.6
1995	478	2,803	53.10	148.8
1996	449	2,783	35.30	98.2
1997	452	2,993	33.10	99.1
1998 2/	438	2,938	24.80	72.9
1999 4/	404	2,813	33.70	94.8

1/ Sum of color class may not add to U.S. total due to rounding.
2/ Revised based on additional information.
3/ Data not available for 1981.
4/ Data are preliminary.

Mink: Pelts Produced by Color Class and Number of Farms, Major States and United States, 1998

States	Standard	Ranch Wild	Demi-Buff 1/	Pastel	Pale Brown	Sapphire	Gun Metal	Mahogany
	Number of Pelts							
ID	40,600	42,300	*	*		19,100	28,200	49,600
IL	43,200							*
IA	61,500		*	*		*	17,000	8,100
MI	13,900	*	*	1,200		2,700	*	20,000
MN	72,200	58,000	*	2,100		1,700	31,100	97,700
NY	13,000			200		4,200	100	8,700
OH	31,000	*			*	*	*	27,700
OR	87,600		*	*		15,800	133,000	*
PA	*	*	*	*		12,400	22,900	*
SD	*	*	*	*				37,200
UT	312,000	*	62,000	*	*	40,000	27,000	219,000
WA	57,700	*	*				59,300	*
WI	397,100	14,100	2,500	9,500		27,500	118,000	194,300
Oth Sts	61,500	60,100	51,100	20,600	600	13,400	13,800	65,700
US	1,191,300	174,500	115,600	33,600	600	136,800	453,400	728,000

States	Pearl	Lavender Hope	Pink	Violet Type	White	Misc. & Unclassified	Total Pelts	Number of Farms
	Number of Pelts							
ID		*		*		*	192,600	22
IL	*				*	*	49,600	10
IA	*			*	*		123,900	19
MI	800			*	4,400		46,000	13
MN	*				*		268,200	44
NY				4,200			30,500	10
OH							70,400	12
OR				*			263,000	30
PA	*		*	*	*		67,500	11
SD	*						93,800	6
UT	*			*			675,000	115
WA	-						142,600	20
WI		*	*	11,900	20,700	*	800,500	94
Oth Sts	22,300	5,500	1,900	9,400	18,400	4,700	114,500	32
US	23,100	5,500	1,900	25,600	43,500	4,700	2,938,100	438

1/ Demi-buff includes crossed of dark brown, violet, pastel, standard, pearl or others.

* Included in other States to avoid disclosing individual operations.

Mink: Pelts Produced by Color Class and Number of Farms, Major States and United States, 1999

States	Standard	Ranch Wild	Demi-Buff 1/	Pastel	Pale Brown	Sapphire	Gun Metal	Mahogany
	Number of Pelts							
ID	39,000	38,800	*	*		27,800	31,700	76,700
IL	42,700				*			*
IA	76,300		*	*		9,000	15,900	9,000
MI	16,500		*	2,000		2,300	0	23,500
MN	43,300	60,400	5,900	2,500		1,800	37,300	107,600
NY	*			*		*	*	*
OH	31,000	*		*		2,200	*	20,300
OR	89,000		*	*		14,000	147,000	*
PA	*	*	*	*		13,200	26,100	*
SD	*	*	12,700	2,000				46,500
UT	284,000	11,000	58,000	*		32,000	23,000	211,000
WA	45,000	*	*				67,900	
WI	341,300	*	*	10,200	*	35,400	99,900	187,700
Oth Sts	59,300	61,400	29,700	23,800	1,200	3,000	10,100	36,800
US	1,067,400	171,600	106,300	40,500	1,200	140,700	458,900	719,100

States	Pearl	Lavender Hope	Pink	Violet Type	White	Misc. & Unclassified	Total Pelts	Number of Farms
	Number of Pelts							
ID		*				*	228,500	26
IL	*		*		*	*	49,300	8
IA				*	*		128,100	16
MI	*			*	*		51,000	13
MN	*			*	*		262,700	40
NY							5,900	8
OH		*					59,100	12
OR				*			270,000	30
PA	*			*	*		74,000	11
SD	12,000						99,700	5
UT	*			*			650,000	110
WA							129,200	18
WI	*	*	*	*	30,800		731,700	82
Oth Sts	20,300	9,000	3,300	8,600	21,400	1,700	73,600	25
US	32,300	9,000	3,300	8,600	52,200	1,700	2,812,800	404

1/ Demi-buff includes crossed of dark brown, violet, pastel, standard, pearl or others.

* Included in other States to avoid disclosing individual operations.

Female Mink Bred to Produce Kits: Number by Color Class, Major States and United States, 1999

States	Standard	Ranch Wild	Demi-Buff 1/	Pastel	Pale Brown	Sapphire	Gun Metal	Mahogany

	Number							
ID	7,700	9,100	*	*		5,600	6,600	13,900
IL	11,300		*					*
IA	20,300	*	1,600			*	4,900	3,600
MI	3,900	*	*	600		1,000	*	4,700
MN	10,900	13,900	*	700		700	7,100	22,500
NY	1,500			300		100	100	
OH	8,800	*			*	*	*	5,900
OR	18,400		*	*		2,900	33,000	*
PA	*	*	*	*		3,700	6,000	*
SD	*	*	*	*				7,800
UT	70,400	*	15,400	*		9,800	8,500	45,700
WA	11,800	*	*				15,100	
WI	79,500	3,400	800	2,800		7,300	28,400	35,000
Oth Sts	21,000	12,900	8,400	5,800	200	5,800	12,900	15,900
US	265,500	39,300	26,200	10,200	200	36,900	112,600	155,000

	Pearl	Lavender Hope	Pink	Violet Type	White	Misc. & Unclassified	Total
	Number						
ID		*				*	53,600
IL	*				*		12,800
IA	*			*	*		37,900
MI	*			*	1,300		15,500
MN					*		57,100
NY							2,000
OH						*	20,100
OR							58,000
PA	*		*	*	*		18,900
SD	*						22,800
UT	*			*	*		156,000
WA							29,600
WI		*	*	2,000	5,300	1,000	166,200
Oth Sts	9,400	2,000	700	3,200	4,300	600	22,200
US	9,400	2,000	700	5,200	10,900	1,600	672,700

1/ Demi-buff includes crossed of dark brown, violet, pastel, standard, pearl or others.

* Included in other States to avoid disclosing individual operations.

Female Mink Bred to Produce Kits: Number by Color Class, Major States and United States, 2000

States	Standard	Ranch Wild	Demi-Buff 1/	Pastel	Pale Brown	Sapphire	Gun Metal	Mahogany
	Number							
ID	9,300	4,700	*	*		6,900	7,500	19,700
IL	10,600		*				*	*

IA	23,400		*	*		*	5,200	3,500
MI	2,300		*	400		800		3,900
MN	11,000	11,800	*	600		500	9,100	27,700
NY	*			*		*		
OH	8,500	1,300		*		1,400	*	6,200
OR	17,700		*	*		3,900	31,500	*
PA	*	*	*	*		4,000	5,300	*
SD	*	*	3,100	*				8,600
UT	67,900	*	12,900	*		5,700	12,600	51,100
WA	9,000	*	*				14,900	
WI	78,600	*	200	3,700	*	7,800	25,700	30,100
Oth Sts	15,900	13,900	6,900	7,800	700	2,000	3,200	6,000
US	254,200	31,700	23,100	12,500	700	33,000	115,000	156,800

	Pearl	Lavender Hope	Pink	Violet Type	White	Misc. & Unclassified	Total
			Number				
ID		*				*	51,700
IL	*				*		12,800
IA				*	*		37,800
MI				*	*		8,800
MN					*		62,900
NY							2,000
OH							18,000
OR				*			57,000
PA	*		*	*	*		18,300
SD	*						21,800
UT	*			*	*		163,000
WA							26,600
WI	*	*	*	*	10,200		162,500
Oth Sts	11,200	2,100	500	2,300	6,700	400	17,200
US	11,200	2,100	500	2,300	16,900	400	660,400

1/ Demi-buff includes crossed of dark brown, violet, pastel, standard, pearl or others.

* Included in other States to avoid disclosing individual operations.

Survey Procedures: Data for mink production are collected from all known producers. State Statistical Offices use known sources of producers to update their lists. All known mink producers are mailed a questionnaire and given adequate time to respond by mail. Those that do not respond by mail are telephoned or possibly enumerated in person. Care is exercised to ensure that all operations are accounted for. Major auction houses which handle virtually all producer sales provide mink pelt price data in July. Prices are collected at the point of first sale by producers, before marketing costs are deducted.

Reliability: Sound statistical methodology is employed to derive the estimates from reported data. All data are analyzed for unusual values. Data from each operation are compared to their own past operating profile and to trends from similar operations. Data for inaccessible operations are accounted for through the expansion of the reported data or by imputation based on individual

historical data. Survey data are subject to non-sampling errors such as omissions and mistakes in reporting and in processing the data. While these errors cannot be measured directly, they are minimized by carefully reviewing all reported data for consistency and reasonableness.
The next "Mink" report will be released in July 2001.

ACCESS TO REPORTS!!

For your convenience, there are several ways to obtain NASS reports, data products, and services:

INTERNET ACCESS

All NASS reports are available free of charge on the worldwide Internet. For access, connect to the Internet and go to the NASS Home Page at: http://www.usda.gov/nass/. Select "Today's Reports" or Publications and then Reports by Calendar or Publications and then Search, by Title or Subject.

E-MAIL SUBSCRIPTION

There are two options for subscribing via e-mail. All NASS reports are available by subscription free of charge direct to your e-mail address. 1) Starting with the NASS Home Page at http://www.usda.gov/nass/, click on Publications, then click on the Subscribe by E-mail button which takes you to the page describing e-mail delivery of reports. Finally, click on Go to the Subscription Page and follow the instructions. 2) If you do NOT have Internet access, send an e-mail message to: usda-reports@usda.mannlib.cornell.edu. In the body of the message type the word: list.

AUTOFAX ACCESS

NASSFax service is available for some reports from your fax machine. Please call 202-720-2000, using the handset attached to your fax. Respond to the voice prompts. Document 0411 is a list of available reports.

- -

PRINTED REPORTS OR DATA PRODUCTS

CALL OUR TOLL-FREE ORDER DESK: 800-999-6779 (U.S. and Canada)
Other areas, please call 703-834-0125 FAX: 703-834-0110
(Visa, MasterCard, check, or money order acceptable for payment.)

- -

ASSISTANCE

For assistance with general agricultural statistics or further information about NASS or its products or services, contact the Agricultural Statistics Hotline at 800-727-9540, 7:30 a.m. to 4:00 p.m. ET, or e-mail: nass@nass.usda.gov.

Appendix D

Beaver Felt Hats

Beaver fur was a mainstay in the fur trade from 1550 to 1850 because of the fashionable beaver felt hat. Due to the hat's popularity, beaver became extinct in Western Europe before the 1600's. One of the most significant reasons that beaver fur was used for hats was that it held up much better under the elements that the alternatives: wool felt or other animal furs.

Hatters used both coat and parchment fur to create the hats. Coat fur consisted of the beaver pelts that had been previously worn as winter coats. Parchment fur was the term for pelts that were traded soon after the animal was trapped. Coat beaver was the preferred pelt form into the 17th century, since it was easier for European hatters to process, since the guard hairs had already been worn off. Russians were able to card the wool from the parchment at this time, though.

The first step to prepare the fur for felting was to remove the guard hairs from the hide. Hatters would do this using a knife or tweezers, "leaving only the beaver wool on the skin." Then, the hatter would brush "nitrate of mercury" on the pelt, which is a process called carroting. The tips of the fur would turn a 'carrot' color, and scales on the fibers would rise. This helped make the fur more adequate for matting. The pelt was then dried, and stripped of all fibers.

The fur, now referred to as fluff, was mixed in with dry castor and greasy beaver. Dry castor was fur from a parchment pelt and greasy beaver was fur from coat pelt. The fur was mixed and carded together, and weighed for the appropriate amount for a hat. One hat demanded between eight and twelve ounces of fluff.

The fluff was halved, and each part was bowed. Bowing was done by placing the fluff under a bow that resembled a violin bow, and plucking the string so that the vibration would agitate the fibers. This caused the fluff to continue matting, while dirt and dust would fall from the fibers.

Now called batt, the fibers were manipulated into a triangular shape called a capade. Fluff was added to the capade where the brim, crown and circumference of the hat would be located. Then, the triangular capade was wrapped in a leather hardening skin and placed on an iron plate centered on a wooden bench. The iron plate was heated, the capade was sprinkled with water, and the hatter strengthened the batt.

Two capades were needed to produce one hat, and when both were ready, "they were placed one on top of the other and manipulated further around the edges to form a cone." Once the cone was made, it was placed in a solution of diluted **sulfuric acid**, beer grounds and wine sediments held in a hot kettle. The felt was repeatedly immersed in the solution and worked by hand

until it was extremely compacted. When this was done, the hat was ready to take shape.

The conical 'hat' was placed on a block of wood shaped like a hat, and was forced onto the block. The top of the hat was shaped, and the part that hung over at the bottom became the brim of the hat. Since the hat was still wet, it was left to dry. When it was ready to dye, the hat was placed on a block in a boiling mixture of **'logwood, verdigris, copperas** and **alder-bark'** for an hour, and then removed to cool. The dying process was repeated until the hat was the desired color.

A mixture of stiffening glues were dissolved in water and brushed onto the underside of the hat. Steam was then applied to the hat to make minor alterations, and then the brim was turned up, and an inner lining sewn in. Once the hatter's trademark was stamped on the hat, it was ready for sale ("The Beaver Fur Hat").

Appendix E

Tanning Furs

Furs are tanned in order to preserve the leather and hairs of a particular pelt. The better the furs are preserved and cared for, the longer they will last. Each tanner has his or her own method of **tanning**, but the following process gives a general idea of the tanning method.

First, the pelt must be soaked in order to relax the skin and soften it to make it more workable. The hide is placed in a saltwater bath to prepare it for the tanning process; the bath helps to loosen remaining flesh and fat, dissolve proteins, and open up pores in the skin for improved absorption of the tanning solution (Churchill, 1983).

In order to prevent damage to the hair on the skin, the pelt must be removed from the saltwater as soon as it is 'limp.' At this point, the pelt needs to be dried to prevent the hair from falling out of the leather. Next, the pelt is placed in a solution of one teaspoon of bleach added to five quarts of cold water. The skin needs to soak for about one hour, and then the water needs to be changed in order to prevent bacteria from destroying the pelt. It is also possible to add ammonia to the solution or to scrape off some of the inner skin membrane in order to facilitate faster water penetration (Churchill, 1983).

The pelt is soaked until it is relaxed, and then fleshing occurs. Fleshing is the removal of all fat and flesh that remains on the skin of the pelt. This is done using a sharp knife that is scraped along the hide. Then, the pelt is ready for tanning (Churchill, 1983).

Aluminum sulfate, ammonium alum, or **potash-alum** is typically mixed with salt in water in order to tan the pelts. The pelts that are tanned using alum or acid can be damaged with repeated contact with water. This damage can be avoided by also treating the skin with oil or another type of dressing to make the skin water-resistant. Next the skin can be **chrome tanned** using **chromium sulfate.** Chrome tanning makes the skin resistant to water damage, which makes it one of the "best tannage to use for skins that will be made into garments (Churchill, 1983)."

The next step in the tanning process is degreasing the skin. Sometimes oil or grease on the skin of a pelt can inhibit the tanning agents from properly preserving a pelt. Generally, kerosene is used to degrease a pelt. A **kerosene** bath is prepared, and the pelt is immersed for a period of time ranging from a few hours to and overnight bath. The kerosene is removed from the pelt by a warm water and detergent wash. Sometimes sawdust is rubbed along both sides of the fur to absorb the kerosene. An alternative to kerosene is dry cleaning chemicals. These chemicals are more practical to use since the will evaporate from

the pelt once it is removed from the bath. The fur is then stretched and dried until damp. At this point, the skin must be worked in order to prevent cracking. Finally, it is ready to be made into a garment (Churchill, 1983).

Appendix F

Places to Contact

Animal rights organizations:

American Society for the Prevention of Cruelty to Animals

441 E. 92nd St New York, NY 10128

Animal Liberation

319 W. 74th St New York, NY 10023

Animal Protection Institute of America

PO Box 2505 Sacremento, CA 95822

Beauty Without Cruelty, USA

175 W. 12th St, No. 16-G New York, NY 10011

Fund for Animals

200 W. 57th St New York, NY 10019

International Fund for Animal Welfare

PO Box 193 Yarmouth Port, MA 02675

New Jersey Animal Rights Alliance

Box 174 Englishtown, NJ 07726

People for the Ethical Treatment of Animals

Box 42516 Washington, DC 20015

Fur industry sources:

Fur Information Council of America

447-A Carlisle Drive Herndon, VA 20170-4802

Appendix G

Time Line of Animal Activist Activities*

1984 May 31 ALF breaks into University of Pennsylvania Head Injury Laboratory, stealing data and destroying equipment.

1985 April 20 ALF breaks into University of California at Riverside and causes $600,000 worth of damage when four hundred and sixty rats, pigeons, mice, cats, monkeys, rabbits, gerbils and opossums are stolen.

1987 April 16 ALF set fire to the Animal Diagnostic Clinic at the University of California at Davis, causing $5.1 million in damages.

April 16 ALF burglarizes a rabbit breeding farm in San Bernadino, California, stealing one hundred rabbits.

June 2 Hallmark Furs in St. Louis, Missouri accumulates $1 million in damages when it is firebombed.

1988 August 15 Loma Linda University is burglarized by the ALF. $10,000 worth of damages amassed.

1989 March 26 At Northwestern University in Evanston Illinois, death threats against a researcher are spray painted on some buildings on the campus.

April 2 ALF arson at the University of Arizona at Tuscon causes $100,000 in damages.

July 4 The Texan Tech University Health Science Center is burglarized by the ALF. Research on Sudden Infant Death Syndrome (SIDS) is

destroyed and five cats are stolen.

1990 February 8 Fran Stephanie Trutt, an activist with Friends of Animals is convicted with the attempted murder of the president of the U.S. Surgical Company, Leon Hirsh.

February 13 ALF burglarizes Dr. Adrian Morrison's office at the University of Pennsylvania after he speaks out in defense of animal research.

1991 August 12 ALF causes a fire at Washington State University at Pullman. They release seven coyotes, six mink and ten mice.

February 28 An ALF arson at Michigan State University results in the loss of 32 years of pollution and wildlife disease research, and the loss of ten years of in vitro-research.

1992 November 8 ALF firebombs five trucks at Swanson Meats in Minneapolis, Minnesota.

1993 June 22 A geneticist at the University of California at San Francisco is maimed by a mail bomb.

June 24 A computer scientist researching animals at Yale University is injured by a mail bomb. His brother, also an animal researcher, received a phone threat stating "You're next."

* Information taken from Appendix Three in *Animal Scam* by Kathleen Marquardt.

Literature Cited

"1960s Ladies Dress."
http://www.geocities.com/SoHo/4473/dress.html (September 15, 2000).

"About the Fund." The Fund for Animals. http://www.fund.org/about (September 21, 2000).

"Astoria." http://www.members.tripod.com/~astoria_history (July 13, 2000).

"Busy beavers love trap law." WB56 and The Associated Press. google.yahoo.com/bin/query?p=conibear+trap&b=20&hc=1&hs=1 (September 19, 2000).

Burns, Katy. "Hug a beaver? People just don't get nature." *Concord Monitor*. (June 5, 2000).

Churchill, James, *The Complete Book of Tanning Skins and Furs*, Stackpole Books. USA. 1983.

Corbman, Dr. Bernard P. *Textiles: Fiber to Fabric*. Fifth Edition. McGraw-Hill, Inc. USA. 1975.

"Fund Facts: The Bloody Business of Fur." The Fund for Animals. Wildlife Fact Sheet #3.

"Fur Throughout History," Flemmington Fur Co. http://www.flemfur.com/history.html (September 7, 2000).

Flora, Stephanie. "Northwest Fur Traders."
http://www.teleport.com/~sflora/traders.htm (July 13, 2000).

Foster, John Elgin. "Fur trade." Discovery Channel School.
original content provided by *World Book Online*.
http://www.discoveryschool.com/students/homeworkelp/worldbook/atozhistory/f/213680.html (July 12, 2000).

Frick, G. William. *Environmental Glossary*. Second Edition.
Government Institutes, Inc., USA. 1982.

"Fur Farming in North America." Fur Commission USA. 1999.

Garrett, Reginald H. and Grisham, Charles M. *Biochemistry*. Second Edition. Saunders College Publishing. 1999.

Hall, Anne. "State agency clouds the waters over beaver traps."
Boston Globe. Northwest Weekly. February 28, 1999.

Harding, A.R. *Fur Farming*. A.R. Harding Publishing Co. July 1985.

"History of Fashion: 1920-1930."
http://www.vintageblues.com/history2.htm (September 14, 2000).

"History of Fashion: 1930-1940."
http://www.vintageblues.com/history3.htm (September 14, 2000).

"History of the Fur Trade." *Compton's Encyclopedia Online* v. 3.0,
The Learning Company, Inc. 1998.
http://www.comptons.com/encyclopedia/ARTICLES/0050/00707328_A

.html (July 12, 2000).

Hollen, Norma and Saddler, Jane. *Textiles*. Third Edition. The Macmillan Company, New York/ Collier-Macmillan Limited, London. USA. 1968.

Howard, Lucy and Koehl, Carla. "The Skinny on all Those Fake Furs." *Newsweek*. October 9, 1995.

International Fund for Animal Welfare (IFAW). "Animal Rights and Animal Welfare." Office of Supporter Services.

"International Fur Trade Today." International Fur Trade Federation. http://www.iftf.com/iftf/today.html (January 12, 2000).

Jamison, Rick. *The Trapper's Handbook*. DBI Books, Inc. USA. MCMLXXXIII.

Kadolph, Sara J., Langford, Anna L., Hollen, Norma, and Saddler, Jane. *Textiles*. Seventh Edition. Macmillan Publishing Company. USA. 1993.

Laidler, John. "Question 1 takes aim at wildlife traps." *Boston Globe*. West Weekly. October 20, 1996.

"Mink." National Agricultural Statistics Services. USDA. http://usda.mannlib.cornell.edu/reports/nassr/other/zmi-bb/mink0700.txt Released July 20, 2000.

Lewis, Richard J. *Hawley's Condensed Chemical Dictionary*. Twelfth Edition. Van Nostrand Reinhold. USA. 1993.

Marquardt, Kathleen. *Animal Scam: The Beastly Abuse of Human Rights*. Regnery Gateway. USA. 1993.

National Trappers Association, Inc. http://www.nationaltrappers.com (September 19, 2000).

"Our History." People for the Ethical Treatment of Animals. http://www.peta.org/about/hist.html (September 22, 2000).

Patterson, Charles. *Animal Rights*. Enslow Publishers, Inc. USA. 1993.

"Poiret and Eastern Influence-Women's Fashions of the 1910s." Vintage Vixen Clothing Co. http://www.vintagevixen.com/1910s.html (September 15, 2000).

Rouvinen, Dr. Kristi. "Manure Management on Fur Farms." Department of Animal Science. Nova Scotia Agricultural College. http://agri.gov.ns.ca/pt/lives/furfacts/manure.htm (September 7, 2000).

"Sheiks and Shebas-Women's Fashions of the 1920s." Vintage Vixen Clothing Co. http://www.vintagevixen.com/1920s.html (September 15, 2000).

Smith, G.H. "Energy Study of Real vs. Synthetic Furs." University of Michigan. 1979.

"Soft Gold? -the Northern Fur Industry." http://articculture.about.com/culture/arcticculture/library/weekly/aa092598.htm?terms=fur (September 15, 2000).

"The Beaver Fur Hat." The White Oak Society. http://www.whiteoak.org/learning/furhat.htm (February 1, 1998).

"The Fur Trade: 'Beaver Powered Mountaineering.'" http://xroads.virginia.edu/~HYPER/HNS/Mtmen/furtrade.html (July 12, 2000).

"The Fur Trade: Its Impacts on Native America." http://www.moorhead.msus.edu/archives/Minnesota%20History/linksfurtrade.htm (July 13, 2000).

Tynan, Trudy. "Beaver catchers in demand." *Concord Monitor* and The Associated Press. May 1, 2000.

"Warming up to fur." *Time*. The Arts. October 19,1998.

Webster's Seventh New Collegiate Dictionary. G. & C. Merriam Company. USA. 1965.

Williams, Roger J., and Lansford, Edwin M., Jr. *The Encyclopedia of Biochemistry*, Reinhold Publishing Corporation. USA. 1967.

World Animal Net. "Anti-Fur Campaign Resources." http://www.worldanimal.net/fur-resources.html#realorfake (September 23, 2000).

Zumdahl, Steven S. *Chemical Principles*. Third Edition. Houghton Mifflin Company. USA. 1998.