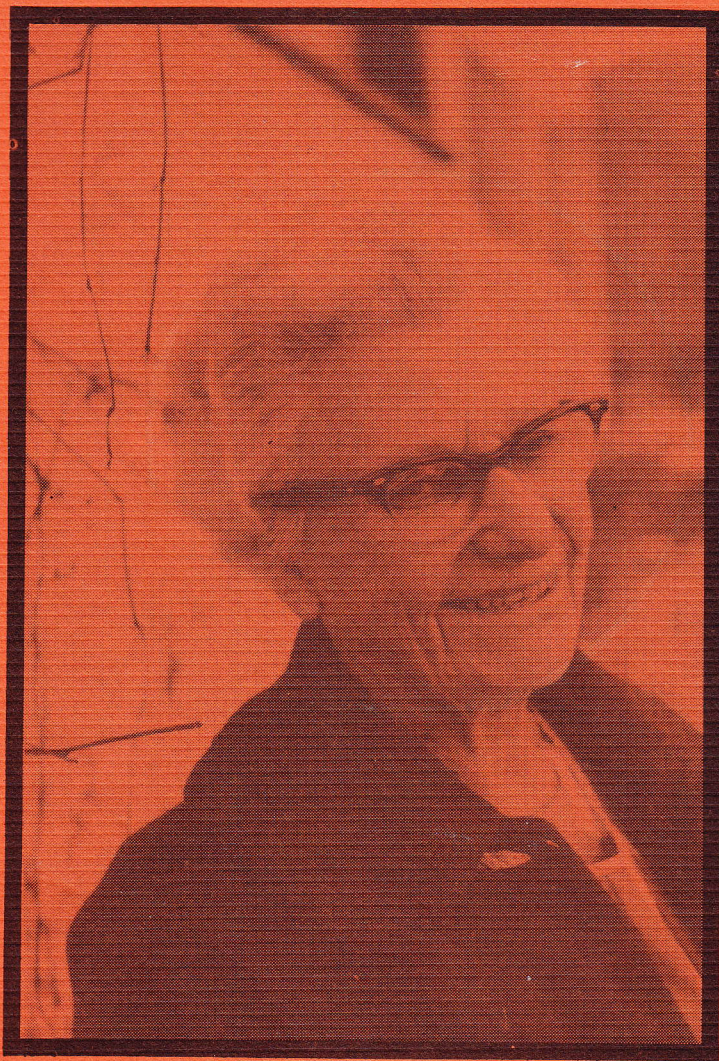


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To My Loving Daughter, Dorothy

*So Ann with deep
appreciation & Love
Kate,*

ACKNOWLEDGEMENTS

Without the encouragement and financial backing of the Prince Albert Pulp Company Ltd. and Prince Albert Pulpwood Ltd., this book would not have been possible. I would like to extend my sincerest thanks to both companies for their support and interest.

Also, I would like to acknowledge with gratitude, the help and inspiration given me by Ann Mills, Margreet van Walsem and Helen Lumby. They carried the load.

Margaret Grant's moral support and encouragement made me feel that it could be done and Lea Collins' faith and support helped make it work.

Kate Waterhouse - March 1st, 1977

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THE PRINCE ALBERT PULP COMPANY LTD. AND PRINCE ALBERT PULPWOOD LTD., ARE MOST HAPPY TO HAVE ASSISTED IN THE PUBLISHING OF THE FASCINATING DISCOVERIES OF KATE WATERHOUSE. HATS OFF TO KATE FOR HER DILIGENT RESEARCH AND EXPERIMENTATION! HER GENEROUS SHARING OF THE MANY HIDDEN TREASURES OF COLOUR SHE HAS FOUND IN SASKATCHEWAN'S BOUNTIFUL PLANT WORLD WILL GREATLY BENEFIT ALL DYEING ENTHUSIASTS THROUGH THE YEARS.

Another adventurous hobby connected with nature is meeting with excellent results. Making paper by hand can be great fun indeed and we have included the names of two publications that will give you all the information you will require to begin.

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PHOTO CENTRE PAGES

The subtle beauty of wool spun and dyed by Kate Waterhouse was photographed by Bob Howard of Regina when her work was displayed at the Dunlop Art Gallery in Regina, October 1976.

FOREWORD

1966 may have been a year to be remembered by Saskatchewan spinners and weavers. At that time Kate Waterhouse started to watch the changing seasons with the eye of a dyer.

Her vegetable garden still contained vegetables, but she came to value some of these more than the others on account of the colour they contained. Her flowerbeds still were pleasing to the senses but some flowers took on a special significance because they were considered to be dye plants. She planted wild flowers and even weeds in her garden for the same reason.

In those beginning years, practical information on dyeing was for her not easy to find but she was able to secure the help of the Saskatchewan Arts Board. This meant that since that time, classes in dyeing and weaving by Anton Skerbinc, Esther Hasel and others have been part of the curriculum of the Saskatchewan Summer School of the Arts. From then on Kate followed her newly found direction with cheerful conviction.

Many people are now enjoying her delightful classes, and to put some of her findings together in this book was just the next logical step because in Kate's case, her knowledge wants to spread itself.

The main support for this book has come from the Prince Albert Pulp Company Ltd. and from Prince Albert Pulpwood Ltd. A substantial grant covered the expenses and in addition, we were given access to the expertise of Lumby Productions Ltd. in Saskatoon. Helen Lumby's patience and good humour have carried us through.

Again, the Saskatchewan Arts Board has not only provided moral and financial support to this effort, but we also had the benefit of the ideas and invaluable advice of Lea Collins.

We hope that in time many people will go out and enjoy the unique experience Kate so eloquently describes, in their own personal fashion, and will find their own utterly satisfying results. That way, her course will go on in its rewarding way, full of glee and unrelenting.

Margreet van Walsem

Ann Mills

INTRODUCTION

It is well known to weavers that nature dyeing or vegetable dyeing is as old as weaving itself. The Bible tells us of fine raiment in beautiful colours. With the revival of the craft of spinning and weaving in North America, it was only natural that dyeing with plants should be revived too.

The books that are published for present day dyers are all about plants that grow in eastern Canada and the eastern United States. Only a few of these plants can be found on the prairies but this need not stop those living in Saskatchewan from practising this craft. We have numerous wild plants and many more growing in our gardens that yield dye. The many flowers you grow in spring and summer that beautify your home will continue to delight you all year if the flowerheads are carefully picked and then dried, or put in plastic bags in the freezer till you have enough for a project.

You may ask: "Why all the furor about plant dyeing, when chemical dyes are all around us in our everyday living?" We have no objections to them and are not trying to compete with them. Use chemical dyes if you wish, but there won't be the thrill of gathering your own plant, cooking it and coming up with the coloured brew yourself. Then of course, there's the fun of watching your wool taking on one of nature's colours. It's always an adventure. Once you are bitten by the nature dye bug, you are lost to those softer, lovelier colours.

As a weaver I have very seldom overdyed a colour I obtained except to get a blueish-green. Sometimes the most disappointing colour in your dye pot will surprise you with the most exciting and unusual effects when woven into fabric. Also I have often over a period of three or four years, come back to get dyed fleece to spin, only to find that it has darkened and taken on more depth of colour. So, do not throw your ugly duckling out. Wash it and store it for another time and try again.

Next time you're on a trip outside the province you might like to bring some leaves and twigs back with you. True, they won't be Saskatchewan, but it makes for a little extra fun. A good reference book to help you identify the plants is entitled, "Wild Plants of the Canadian Prairies", put out by the Canada Department of Agriculture. Many other publications are available as well.

You may have difficulty recognizing the plant by picture, like the time I was trying to find 'Ladies Bedstraw'. From the description I was sure I had seen it on the farm. In desperation I wrote to our weed inspector. One day, a rap on the door and who comes bearing gifts but the inspector with a clump of 'Ladies Bedstraw', two different kinds of sages; one a Meadowsage, the other a Pasturesage, and six beautiful blossoms of the Bullthistle. He was full of interest in what I was doing and said, "The Bullthistle looks so pretty. I wondered what colour you could get."

It seems there is always someone who is interested and willing to give you plants and lichens if they know about your work. I have received boxes of dye material from British Columbia, samples and plants from Pennsylvania, lichen from Flin Flon, and several from Northern Saskatchewan. My grandson, when he was about four years old, was even willing to help. His parents and the children were returning from a trip to Peace River when they stopped overnight at a camping site. There were lots of pine cones lying on the ground. My daughter took a bag and started gathering. The children wanted to know what they were for. She told them, "For grandma's dye!" Well, about three days after the family returned home, my daughter heard a call to open the door. She did so and there stood my grandson demanding a big paper bag. She said, "You can't come in here with that!" He said, "Get me a bag!" She said, "Whatever in the world do you want a bag for that for?" "I'm taking it in to Grandma for her dye." He was standing with a big armful of cowchips!

There is an old saying: "He who looks upon the wine when it is red, is lost." Let me tell you; "He who looks in the dye pot where there is colour, is equally lost." You will never be the same again. There will always be another flower, another plant and hopefully, another colour to be found. It is with this in mind, that I write to those who read this book, to encourage them to pick, boil and dye. Recipes, plants and ideas will be given, but let me stress: do not use the recipes as you would a cookbook. Use them only as a start on the happy journey of nature dyeing. Adventure! The joy of being out in God's pure air to gather the plants, the excitement when you have found colour; the sense of accomplishment with the dyed wool.

CHAPTER ONE - UTENSILS

You will require:

1. A large enamel kettle and several of a smaller size.
2. Several dowels for stirring the wool. You can use stout branches if the bark is removed. They must be well sanded so they do not snag the wool.
3. 12 quart plastic pails for washing and rinsing the wool
4. A cracked cup
5. Glass jars for oven dyeing
6. Plastic strainer
7. Measuring spoons
8. Rubber gloves
9. Scale to weigh wool and plants

REMEMBER, Whatever you use for dye is no longer fit to use in the cooking or preparation of food.

China is neutral and will not affect the dye, so I like to use a cracked cup as the container to dissolve the chemicals in. Also, it's handy for testing the liquid to see how the dye is running and just the right size for pushing the wool down into the water. I once had just such a cup. Being cracked, it was no longer of use in the kitchen. It got washed regularly as soon as a dye bath was finished. One day my brother came to visit. My dye cup was sitting on the kitchen counter. I stepped outside for a few minutes and when I came back in, there it was, in a million pieces on the cement floor of the garage. My brother faced me saying "I guess you won't use that cup again!" I guess I wouldn't! never could understand how he would think I was using it for food or drink. My daughter came to my rescue with another cracked cup soon after and it now has a nice dark line along the crack.

MORAL: Look out for your dye cup!

Enamel is the best to use for dye and mordanting. If you are buying a new kettle, check carefully for even minute cracks or chips since if even a tiny chip is off, with use, more will follow.

Enamel pails are good alternatives. They are available in good sizes with flat bottoms.

One afternoon I went looking for some enamel kettles for my dye. I priced the kettles and as I am price conscious, I was hesitating. Then my eye lit on some white enamel chamber pots. They were a large size and half the price of the kettles. Of course! And some of my old dinner plates could serve as lids. I was elated! Carefully I inspected them for chips and bubbles in the enamel. I chose one that I thought would answer. The male clerk had come up to me and was standing with a frown on his face as I peered inside and checked for blemishes. I said, "This is to use for dye. Have you another that has no blemishes?" He growled, "You got one, what do you want two for?"

The books will tell you not to use aluminum, iron or copper kettles for dyeing. As a rule this is true, but I've been surprised with some very nice results by using an aluminum kettle.

Friends of mine used a copper kettle and came up with a most beautiful color obtained from goldenrod. If you can beg one or get one cheap at an auction, latch on to it and have fun. These are the things that make dyeing so very interesting. So experiment!

The first step is to procure your wool. Don't take a fleece that has a lot of straw and chaff in it. Also, when you are buying, don't pay for a fleece that has dirty tags of manure on it. The fleece should be skirted, that is, those tags of manure removed. As a rule, you will find that after a fleece is washed and the dirt removed, you have about half the amount by weight left.

To make wool comforters, I used to wash a whole fleece at one time just as the farm women did. Now I pick out the best spinning parts of the wool fleece and wash a pound or so at a time. The rest I wash all at one time and set aside for other uses. You can use several different methods of washing fleece and come up with a good grade of wool, providing you remember not to subject the wool to sudden changes of temperature in washing and rinsing. I open the wool in my hands and shake it to remove as much foreign matter as possible.

Years ago, we had the misfortune to lose our house by fire. A neighbor brought some wool for me to use to make new comforters. In my ignorance, I put it to soak in a tub of water to remove the dirt. After several hours when I went to wash it, I stuck both my hands into a thick goo and proceeded to become violently ill. I took a stick, picked it out, got clean water and finally got it cleaned. As I look back, I believe it must have been mostly the 'tags'. When I told my friend how sick it made me she said, "Oh, I'm sorry, I could have told you to use a pitchfork!"

When I first began, there were two things that caused me a lot of grief in spinning. The first is called 'undercut' or 'second cut'. This happens when the shearer's clipper rises a little too high on the coat. The shearer then goes back over it and cuts the fleece closer to the hide. You should remove any cutting inconsistencies along with the trash or they will cause lumps in the carded wool and make it harder to spin.

The other problem I encountered was in working lamb's wool. It is lovely and soft and a delight to hold and feel. I thrill to it every time I have it in my hands. But first consider what you want it for, knitting or weaving - warp or weft? Are you an experienced spinner or a novice? Many times I have struggled with lamb's wool trying to pull it out and keep the wool from breaking and the wheel or treadle moving at the same time. The problem was solved when I got longer fibred fleece. So, I would suggest you stay with the medium to long fibred wool until you can handle the wheel. It saves a lot of wear and tear on the nervous system.

You'll need: 12 quart pail

1/4 cup gentle detergent - soap may be used to wash the fleece if your water is soft.

1/2 cup Calgon

Very hot water

1. Pour detergent and Calgon into pail.
2. Add very hot water to be sure Calgon is dissolved.
3. Put one pound of fleece in pail.
4. Push gently under the water. Leave to soak until cool - overnight is good.
5. Have another pail of lukewarm water ready.
6. Lift wool and put in strainer or gently press it to remove as much water as possible without wringing.
7. If still dirty looking, place in fresh, warm water and dishwashing detergent. Gently move it. Never stir around. Remember, water must be warm, no more hot water after the first time.
8. Use another clear rinse water softened with Calgon.
9. Rinse in several waters till all traces of detergent are removed.
10. Web and dry in the shade or where convenient but not in the sun. If you have your mordant ready, leave wool in the lukewarm water until the mordanting process can be started.

Remember, these are the rules to produce a good clean fleece ready for dyeing:

1. Never change wool from hot water to cold or from cold to hot.
2. Never let the faucet run on your fleece.
3. Too much detergent will be hard to remove and could cause you to handle the wool excessively. Matting of the fibres may result.
4. If wool is to be dyed in the fleece, all oil must be removed before dyeing. If to be spun uncoloured, one washing will be enough as it will be washed again after spinning, before dyeing the yarn.
5. Pull the wool apart gently till you can see through it. This is called 'webbing' and is done as you set the wool to dry.

You may at some time forget some little detail and end up with a fleece that won't be all that you'd like. That's part of it. If you are careful, your failures will be few.

CHAPTER FOUR – MORDANTS & MORDANTING

The word 'mordant' is from the Latin meaning to 'bite'. To mordant is to fix or set the dye with a chemical. Perhaps it is more correct to say that by mordanting the wool becomes conditioned to accept and hold the dye more readily in the fibre. It is a very necessary part of dyeing and should be done carefully and exactly, for using too much of a mordant, tin for example, can ruin the wool. The majority of plants need a mordant to set the dye but some do not. These are called substantive dyes.

MORDANTS:

Alum - Potassium Aluminum Sulphate - a white powder. It is commonly known as potassium alum. It is poisonous. If you use too much, it leaves the wool sticky. This alum is not the alum used in making pickles. The alum you buy at the grocery store can be used but it is not satisfactory. You get best results from Potassium Alum.

Chrome - Potassium Dichromate - also called bichromate of potash or soda. It is orange in colour and comes in the form of crystals. It is sensitive to light and is best stored in a dark glass bottle. (Brown instant coffee bottles are good) It is also poisonous. Do not inhale the fumes. Have good ventilation when using the chemicals.

Iron - Ferrous Sulphate - known also as green vitriol or copperas. The latter term, copperas, is used a lot by dyers. It darkens or saddens wool. Too much will harm the wool by hardening it.

Tin - Stannous Chloride looks a dirty white colour. It is expensive, but a little goes a long way. Use it sparingly. Too much will harm the wool, making it harsh and brittle. Blooming is a term used when a small amount of tin is used to brighten the colour in the final stage. Tin is good to bloom the dye with. Reds and yellows really come alive.

Blue Vitriol - Copper Sulphate - bluestone - used to obtain greens. Small or large blue crystals. Poisonous!

Ammonia - Ammonium Hydroxide - which is clear household ammonia. Be sure it has no additives to make it sudsy. Good for an after rinse.

Caustic Soda - Sodium Hydroxide - irregular white pellets destructive if dropped on clothing - can burn the skin.

Lime - Calcium Oxide or Slaked Lime - a powdery white substance.

Tannic Acid - a tannin which is the astringent principle in all parts of sumacs, in oak bark, and in gallnuts (hard swellings on certain oaks caused by gall flies. Other plants have them too.)

Baking Soda - Sodium Bicarbonate - for alkalinity.

Washing Soda - Sodium Carbonate - for alkalinity.

Salt - Sodium Chloride - a leveling agent.

Cream of Tartar - Potassium Bitartrate - chemical assistant. Non toxic, Keep lid tightly closed.

Chalk - powdered - Calcium Carbonate - for alkalinity.

There are several ways of mordanting. (See also chapter on dyeing)

1. Put the mordant in with the plant and water, add the wool and do the dyeing and the mordanting both at the same time. This is the one-pot method.
2. Boil the dye plant. Strain the dye bath from the plant, let it cool to lukewarm and add wetted wool; simmer 20 minutes or longer, until colour that pleases you is obtained. Lift the wool out, add the proper amount of mordant (which has been dissolved) to the dye bath, re-enter wool and simmer ten to fifteen minutes and rinse.
3. As a pre-mordant. Add dissolved mordant to lukewarm water. When thoroughly mixed, add the wool (which has been wetted in lukewarm water). Bring slowly to boiling point. Simmer 1 hour. Let cool. Remove from mordant and let drain, enter in dye bath. If you plan to use it later press the water out and hang up to dry.
4. The mordant, dissolved in a cup of hot water, can be added to the dye bath. Heat to lukewarm. Add wetted wool, simmer the required time.

I have used at one time or another all four methods. That is the fun. I like to have some dry, pre-mordanted wool on hand, treated with several mordants so that when I see a plant and it looks like dye, I can soak my wool in the water, boil up a sample batch of dye and try it out.

Mordants are poisonous. Some are more potent than others. Keep under lock and key and out of reach of children and the unwary. The ideal place is a cool, dry, dark cupboard. I have been warned by a nature dyer of many years never to use chrome dyed wool in a baby blanket. If a child sucked on the blanket it might possibly be poisoned. Far-fetched? I don't know, but I certainly would not take the chance.

All mordants must be thoroughly dissolved before adding to water. All wool must be thoroughly wet before adding to mordant: this means several hours soaking in water. All waters should be lukewarm. When pre-mordanting, bring wool and mordant water slowly to the simmer and simmer (not boil) for one hour. Turn the heat off, and cool till you can handle the wool with your hands. Turn the wool occasionally -

never stir, never handle vigorously. These actions make it hard to web, tease and card the wool later. Treat your wool gently, and it will reward you with a nicer finished product.

Soft water is best for mordanting as well as dyeing, if you have it. If not Calgon will help.

Press out as much of the mordant as possible between your hands; set to drain. **Alum** mordanted wool can then be put in a cloth and in a plastic bag, and stored in the refrigerator, or it can be hung up in a shed or in a garage to dry. The same treatment can be given to **Bluestone** mordanted wool. When dried, it can be kept for a long time. **Chrome** must be kept from the light. Do not lift the lid when mordanting unless absolutely necessary, and only for seconds. Some recommend an old plate to be placed on the wool, to keep it immersed. After squeezing, have old rags handy, and roll the wool in these immediately. Place this on a thick pad of newspapers in a dark place, and keep replacing the newspapers, until the wool is dry. **Tin** mordanted wool should be used soon after pre-mordanting. Remove as much of the mordanting water as possible by pressing, and put in a lukewarm dyebath. If I am going to keep it for a while, I give it a gentle rinse in water, press it out and drain it well. After dyeing, all tin mordanted wool should be washed with soap and water to remove every trace of tin. After mordanting with **Iron** the wool should be dyed right away, that means, pressing out the mordanting water, and having the lukewarm dyebath to put the wool in. Iron will sadden the colour, that is darkent the colour, or make duller. Tin, on the other hand, will bloom the colour. It will brighten it and give it life.

CHAPTER FIVE – MORDANTING RECIPES

The recipes will be for 1/2 lb. or 8 oz. of wool, the most convenient quantity for anyone who makes use of an electric or gas kitchen stove. Also I believe you get a better colour by dyeing smaller amounts at a time.

Alum

4 tablespoons of Alum
1 tablespoon cream of tartar
2 1/2 gallons of water
8 oz. wool

Chrome

1 teaspoon Chrome
1 1/2 teaspoons cream of tartar
2 1/2 gallons of water
8 oz. wool

Copper (Bluestone)

1 3/4 teaspoon Bluestone
1 1/2 teaspoons cream of tartar
2 1/2 gallons of water
8 oz. wool

Iron

1 1/2 teaspoons Iron
4 teaspoons cream of tartar
2 1/2 gallons of water
8 oz. wool

CHAPTER SIX – ON COLLECTING DYE PLANTS

Ten years ago, all you could find in books about dyeplants, were plants and shrubs of Eastern Canada and the USA. I shall give you the names of plants that I have found growing up the alley, down the street, out in the country along back roads and also the names of plants I grew from seed in my garden. Do not get me wrong. This is not a complete list of dye plants to be found in Saskatchewan. This is what I discovered and obtained colour from. Hopefully I will find many, many more and you will too, if you look around and are willing to experiment. Keep trying for that other colour at the foot of the rainbow. The cultivated plants in the list are all hardy, easy to grow, no lifting in to the house for the winter. If perennial or biennial, they have been able to stand the winters in my garden.

It is fun to go out in the country to gather the plants from the roadside, pastures and from around the sloughs. Always ask permission first before trespassing on private property. If at all possible, have a companion or two with you, looking for plants too.

Be sure to live up to the privilege you have been granted; close all the gates after you have opened them and be sure they are fast before leaving them. Watch out for fire hazards - remember that cigarette butts or matches can start a fire that may destroy a wheat field or a forest.

Now, if you have on a long sleeved shirt to prevent scratches and prickles, an old pair of jeans, a bag, scissors or better, pruning shears or a sharp knife, you are prepared for an afternoon's wandering in the pleasant autumn sun with companionship and God's pure air. Enjoy it. The bonus will be dye plants.

Take only what you need. Always leave as much as you take. The word is: conservation - you do not own these wild plants, you only borrow some. Be sure to leave half for those that come after. The weeds are a different story; you can take all you want and feel virtuous about it. If you are not going to use the root of the plant, do not pull it up; cut it off. If it is a perennial, it will grow again.

When you come home with more than you can use fresh, sort them out and hang the whole plants to dry. Blossoms are spread out; they should be moved about a bit each day until they are dry. Leaves can be treated in the same way. The danger to guard against is mould. Heat when the dye material is packed will cause rot, and this makes the plants useless for dyeing. When freezing them, do it right away after picking out twigs and other foreign matter. Some plants have a very strong odour, like Marigolds, Sage, Sunflowers, to name a few. Those should be double bagged. Maybe you have found a new dyeplant. Try to identify it. Lucky you, if you have a botanist friend to help you.

Take care of your garden plants the same way. If they cannot be used fresh, cut the flowers off daily. In my garden that is a daily chore about 10 a.m. every sunny morning, after the plants come into bloom. Then they too are either frozen or dried.

Bark is best stripped off the limbs when fresh; that is easier than when dried. After that, freeze or dry the bark. Twigs you can cut into pieces and dry.

The blessings of these hours are numerous. You learn about edible plants; many you have always considered to be weeds, in your search to identify your finds. Some day you may get up your courage to try some. If you have shrubs in your garden that need pruning, try the prunings for dye. You may get a real thrill if you get colour. Experiment, experiment, and share your findings with a dye friend; that is half the fun.

CHAPTER SEVEN – DYE PLANTS

FROM MY GARDEN

African and French Marigold
 Artemisia Absinthium (Wormwood)
 Beets
 Calliopsis - preferably the red or red-centred one
 Carragana bark
 Carrot tops
 Coreopsis
 Cosmos - orange flare, klondyke, sunset
 Cosmos - ordinary
 Crabapple bark
 Dahlia - the kind treated as annuals or bedding plants
 Golden marguerite
 Goose berries - ripe
 Horse radish leaves
 Lilac - common - leaves, twigs and bark
 Lily-of-the-valley
 Madder
 Missouri currants
 Mongolian cherry - berries
 Onion skins
 Parsley
 Rape - flowers and plant
 Rhubarb leaves - poisonous
 Rhubarb roots
 Rue - ruta graveolens
 Scabiosa
 St. John's wort
 Snow-on-the-mountain
 Spirea - bark and twigs - spring prunings
 Tansy
 Weld
 Woad



Ernest Lindner's watercolour "Birch" - 1966

Saskatchewan Arts Board Collection

Birch bark is one of the many barks that is a good source of dye.

WILD PLANTS

Alder - leaves, twigs	Nettle
Beggar ticks	Poplar - leaves
Birch - bark, twigs, leaves	Sage brush
Broomweed	Sage - pasture - and meadow sage
Choke cherries	Saskatoon berries
Coneflower	Smartweed
Dock - also known as Wild Rhubarb	Sunflowers
Fall asters	Wild licorice
Fireweed	Wild rose - roots
Fleabane	Willow roots
Goldenrod	Wolf willow
Gumweed	

WEEDS

Dandelion - blossoms
 Chickweed
 Knotweed
 Plantain
 Purslane
 Ragweed
 Red root pigweed

LICHENS

Ground lichen
 Umbilicaria



CHAPTER EIGHT -- PREPARATION FOR DYEING

To get your plants ready for the dye pot, clean off any dirt and remove old and dead leaves. When using plant material, cut it in small pieces and soak it overnight. Barks, twigs and roots are also treated this way but need a soaking of two or three days at least. Boil the plants for an hour. Barks, twigs and roots may take much longer. You will notice how the colour is running out of the dye material. As a rule plants yield their dye in 30 minutes to 1 hour. All this does not apply to the one-pot method of dyeing described later. Keep a recipe file. Your memory will slip the more dyeing you do, and valuable information will be lost.

The system you work with could be as follows:

Date you gathered the plant

Name of the plant

Where you found it

Date you dyed with it

What part of the plant you used, and how much

Whether the plant was fresh, frozen or dried

Mordant used

Length of time the plant was boiled

Length of time wool simmered in the dye

Whether a rinse was used

A sample of the dyed wool

Do not be stingy with your dye material. Some plants, like Beggar Ticks, Marigolds, Calliopsis, you only need the same amount by weight as the wool. Other plants do not contain as much dye and you will need as much as three or four times the weight compared with the wool.

About colour fastness - this to my opinion has been much overstressed. Because of my dyeing past and my love for this particular process, there is always a large amount of unspun, dyed wool around in my house. By the time I sit down to spin it, very few lots have lost colour. Some colours may have even deepened over the years. In my experience, most colours stand up well with reasonable use. In the case of commissioned work, of course you have to test; the finished piece may be exposed to very severe light conditions over a very long time.

Washfastness to me is of more importance. As far as light is concerned, common sense is called for.

You may dye in the fleece or dye after spinning the wool. If you dye in the fleece and the dyeing happens to turn out uneven, the wool can still be carded. If done well, this can make the unevenness disappear completely. On the other hand, if spun wool does not take the dye evenly, there is nothing that can be done about it. Those light spots will always be lighter spots even after re-dyeing. Some people have a certain colour in mind before they start dyeing. I think it would be better to dye ahead, trying to obtain as many different colours as possible. You can then choose your colours to blend. But again, this is a matter of choice depending on how much you like dyeing.

There are four methods of dyeing.

1. The one-pot method. You put a layer of dyeplant in the dye pot, then the unspun or spun wool, then more dyeplant; over this you gently pour the lukewarm water, in which the mordant had been thoroughly dissolved. Bring this to the simmer and simmer it at least 20 minutes. If the colour is not deep enough, simmer until the result is what you want. Then set it to cool until it can be handled. Rinse until the water is clear.

2. The second method involves cooking the plant, straining it, and cooling it to lukewarm. Then the well wetted, unmordanted wool can be added and simmered for twenty minutes at least. When the colour pleases you, take the wool out, add the mordant, which has been thoroughly dissolved in a cup of hot water. Then re-enter the wool and simmer for fifteen minutes longer.

3. The third method is the pre-mordanting method. In this case the pre-mordanted wool is added, well wetted to the dyebath; simmering is done until satisfactory colour is obtained.

4. The fourth method; add the mordant, again thoroughly dissolved, to the prepared lukewarm dyebath. Stir well and add the well wetted unmordanted wool and simmer at least twenty minutes or until the desired colour is showing. These four methods are all used for dyeing on top of the stove.

A different concept of dyeing involves the oven. For this you will need: four large glass jars (pickle jars) that will hold 128 ounces; $\frac{3}{4}$ of the jar is filled with the prepared dyebath, then you add 4 oz. of well wetted wool. Put the jars in a cold oven, on the lowest rack, not touching each other, set at 200 degrees F. for two hours. Temperature of the oven should be tested beforehand; overheating of the glass jars can be disastrous. Turn the oven off after two hours. Leave the wool to cool in the oven. When cool, rinse till the water is clear.

Things to be remembered when dyeing:

1. The water in Saskatchewan is mostly hard with many different minerals. It varies from locality to locality. This will affect your dye results. You can soften water with Calgon. I like to soften the first rinse water especially. In any way: do not expect your colours to turn out exactly as the ones in the dyebooks. Different soils and climatic conditions also affect the behaviour of plants for dyes. Sometimes the results may disappoint you, but sometimes they will be beyond your expectations.

2. Always simmer wool in the dyebath for at least 20 minutes to set the colour. Remember that wet wool always is a shade darker than dry wool. If the colour is not deep or strong enough, continue to simmer. As a general rule, 1 hour should be long enough. Sometimes a good colour is lost by simmering too long. Use your own judgement even if occasionally it goes against the "books".

3. When dyeing skeins of wool, remember to tie them loosely. If you don't tie them you will end up with a tangled mass; if you tie them too tightly the result will be light spots where the ties were, which cannot be corrected.

4. If you start with an unknown dyeplant, try small samples first. Also if you do not know what an ammonia rinse, or any other rinse will do, try a sample. Take the wool straight from dyebath to rinsebath. See recipe for rhubarb root. The rinse will not work on wool that has already been rinsed in water. Experiment not only with white wool, but also grey. Also do not exclude the possibility of over dyeing: one colour over another.

CHAPTER NINE – DYE RECIPES

BEGGAR TICKS (*Bidens Frondosa*)

This is a very good dye plant. It likes moist places and is found in low spots, edges of sloughs, lakes and ponds. Farmers and ranchers are glad to get rid of it as the two barbs on the seed make it stick to the hide of animals and to our clothing. It can cause extreme soreness in the mouths of cattle.

Colour: with alum, yellow. Good colour with all four mordants, and also on unmordanted wool.

Wool: 8 oz. pre-mordanted or unmordanted.

Mordant: any of the mordants mentioned above.

Plant Material: 16 oz. fresh, whole plant.

Enamel kettle.

2 gallons of water for dye bath.

METHOD

Chop plant material. Cook 30 minutes, cool, strain. Put plant back in pot, cover with water and cook 15 minutes. Cool, strain and add to previous bath. When lukewarm, add pre-mordanted wool to dyebath and simmer 35 minutes. Rinse till clear. Dry in the shade.

BROOMWEED (*Gutierrezia Sarothrae*)

Colour: yellow

Wool: 8 oz. pre-mordanted.

Mordant: Alum

Plant Material: 16 oz. fresh, whole plant, even roots.

Enamel kettle.

2 gallons of water

METHOD

Pre-mordant 8 oz. of wool with alum. Cook 16 oz. of broomweed for 1 hour in soft water. Cool. Strain. Add enough water to make 2 gallons of dyebath. When lukewarm add the pre-mordanted wool, and simmer about 40 minutes, or until colour is satisfactory. Let cool in dyebath, and rinse till clear. Dry in the shade.



BROWN ONIONSKINS (*Allium Cepa*)

Colour: orange.

Wool: 8 oz. pre-mordanted.

Mordant: alum, ammonia rinse.

Plant Material: 16 oz. onion skins.

Enamel kettle.

2 gallons of water.

METHOD

Soak the onion skins for a couple of hours. Cook for 1/2 hour. Cool, strain. Add pre-mordanted wool to lukewarm dyebath. Simmer 25 minutes. Cool till you can handle it. Have an ammonia rinse ready (see Rhubarb root). Lift all the wool out of the dye at once and press out some of the dye. Put the wool in the ammonia rinse. Leave 8 to 10 minutes. Rinse till clear. Dry in the shade.

Ammonia rinse: 2 gallons of water, 1 1/2 tablespoons clear ammonia.

CALLIOPSIS, COREOPSIS (*Coreopsis Tinctoria*)

There are wild and garden varieties of this generous dyeplant. It will also work on unmordanted wool.

Colour: yellow to rust, brown. This recipe aims for rust.

Mordants: all the different mordants. This recipe is for chrome.

Wool: 8 oz. pre-mordanted.

Plant Material: 8 oz. fresh blossoms, 4 oz. dried blossoms.

Enamel kettle.

2 gallons of water.

METHOD

Tear up the blossoms and simmer for 20 minutes. Drain. Pour more water on and again simmer for 20 minutes. Mix all the dye together. Cool to lukewarm. Add pre-mordanted wool and simmer for 30 minutes, or till the colour suits you. Rinse till clear.

Try variations with rinses and after dyebaths. Calliopsis contains a lot of red. The temperature has to stay around simmer; boiling will destroy the red. Some dyers find that the procedure of simmering and changing the water, when extracting the dye up to six times, will emphasize the red. Experiment.

CARROT TOPS

Colour: yellow, clear.

Wool: 8 oz. pre-mordanted.

Mordant: alum.

Plant Material: 3 lbs. carrot tops.

Enamel kettle.

2 gallons of water.

METHOD

Cut up the tops. Cook for 35 minutes. Cool, strain. When dye is lukewarm, add pre-mordanted wool and simmer for 30 minutes, or until colour is good. Cool in dyebath, rinse till clear. Dry in the shade.

CONEFLOWER (*Ratibida Columnifera*)

Colour: yellow.

Wool: 8 oz. pre-mordanted.

Mordant: alum.

Plant Material: whole plant, except root, fresh or dry. Use 16 oz. if fresh, 10 oz. if dried.

Enamel kettle.

2 gallons of water, soft.

METHOD

Cut plant material and soak overnight. Cook for 1 1/2 hours, cool, strain. When dyebath is lukewarm, add pre-mordanted wool. Simmer till colour suits you. Rinse till clear. An ammonia rinse may be used (See Rhubarb root). Tin mordanted wool can be used instead of alum mordanted wool. Be sure to rinse well in soapy water, then rinse in clear water.

COSMOS (*Klondyke Cosmos*)

This is a garden flower and a very good dye plant.

Colour: with alum, yellow; with tin, orange; with chrome, rust.

Wool: 8 oz. pre-mordanted.

Plant Material: 16 oz. frozen or fresh blossoms.

Mordant: any of the mordants mentioned above.

Enamel kettle.

2 gallons of water.

METHOD

Cook plant material 40 minutes. Cool, strain. Add pre-mordanted wool when dyebath is lukewarm. Simmer 30 minutes or till right colour is showing. Cool in dyebath. Rinse till clear. Dry in the shade.

FIREWEED (*Epilobium Augustifolium*)

Colour: old gold.

Wool: 8 oz. pre-mordanted.

Mordant: chrome.

Plant Material: 26 oz. fresh.

Enamel kettle.

2 gallons of water.

METHOD

Chop plant material, cook 1 hour, strain. When dye is lukewarm, add pre-mordanted wool. Simmer 35 minutes or until colour suits you. Cool in dyebath. Rinse till clear. Dry in shade.

GOLDENROD (*Solidago Canadensis*)

Colour: (Strong) yellow.
Wool: 8 oz. pre-mordanted.
Plant Material: 3 lbs. whole plant.
Mordant: Tin (Ammonia Rinse).
Enamel kettle
2 gallons of water.

METHOD

Chop the plant and cook for 1 hour. Cool, strain. Add well wetted, pre-mordanted wool to the lukewarm dyebath. Simmer 30 to 40 minutes. Rinse till clear. Dry in the shade. For ammonia rinse, see rhubarb root.

NOTE: Try a dyebath using flowers only. With another 8 oz. of wool, try after-dyebath, using an iron after dye mordanting or use an iron rinse of 1 tablespoon to 2 gallons of water. Dissolve iron before adding to the water. Have the water the same temperature as the wool. Leave 8 to 10 minutes and rinse thoroughly till clear. Try all other mordants.

GOLDENROD ROOTS

This was purely an experiment and a delightful one. The roots were used from the plants gathered for the foregoing recipe. The shoots on these roots are 1 to 2½" long and quite purplish in colour.

Colour: Different lovely grays with different mordants.
Wool: 8 oz. pre-mordanted.
Plant Material: 20 oz. roots and shoots.
Enamel kettle.
2 gallons of water.

METHOD

Cut the roots with pruning shears in small pieces. Cook 1 hour. Cool. Strain. Divide equally over 5 large jars, putting 2 oz. pre-mordanted wetted wool in each jar. Use Alum, Bluestone, Chrome, Tin-pre-mordanted wool plus one unmordanted. Put in cold oven, leave for 2 hours at 200 degrees. Cool in oven. Rinse till clear. Dry in the shade.

GROUND LICHEN: a grey lichen.

I found mine on a hilltop above the dam. It is all over the ground. Remember not to take more than is needed. Lichens take years to grow, and are precious.

Colour: between tan and brown.
Plant Material: around 1 to 1½ pounds.
Wool: 8 oz. unmordanted.
8 qt. enamel canner.
Lichens are not poisonous - no chemicals are used.

METHOD

Start out with a layer of lichen over the bottom of the canner. Cover these with a double layer of cheesecloth or thin white cotton. Then follows a layer of wool, well wetted and again a layer of cheesecloth. Again the same order is followed: lichen, cotton, wool, cotton, etc., ending with a good layer of lichen. Carefully pour the water on to cover all. Place the lid on the canner and simmer 1½ hours or more, depending on the colour. This method is devised to keep the lichens separated from the wool. Stirring therefore, is not possible. To move the dye up and around a bit, gently pushing from the side helps. Three different shades of wool were the result of this dyebath, the darkest from the bottom. An alternate method would be to put the lichens in a cheesecloth bag. Once lichens have been tangled into the wool, it is almost impossible to remove them.

GUMWEED (*Grindelia Squarrosa*)

Colour: pale yellow.
Wool: 8 oz. pre-mordanted.
Mordant: Tin.
Plant Material: 8 oz. fresh Gumweed.
Enamel kettle.
2 gallons of water.

METHOD

Chop plant, cook 1 hour. Cool, strain. When dyebath is lukewarm, add pre-mordanted wool, simmer for 30 minutes or till colour suits you. Rinse till clear. Dry in the shade.

PRAIRIE SAGE (Silver Sage) (Artemisia Frigida)

Colour: yellowish tan.
Wool: 8 oz. pre-mordanted.
Mordant: Alum.
Plant Material: 16 oz. whole plant.
Enamel pot.
2 gallons of water.

METHOD

Chop plant material fine. Boil 1 hour, cool, strain. When dyebath is lukewarm, add pre-mordanted wool. Simmer for 30 minutes or longer depending on colour wanted. Cool, rinse till clear. A brighter colour is obtained if an ammonia rinse is used before rinsing in clear water. To 2 gallons of water, add 1 tablespoon of ammonia. Put wool into ammonia rinse straight from the dye, same temperature, for 8 to 10 minutes. Rinse till water is clear. Dry in shade.

NOTE: there are other wild sages that can be used for dye too.

RED ROOT PIGWEED (Amaranthus Retroflexus L)

This is a common weed of the Amaranth family, not to be confused with Lambs Quarters. It has quite a bit of red in the stems and when it blooms and seeds, the plant has sort of a scratchy bush at the top and little side shoots. Most gardens are bothered by some.

Colour: grey.
Wool: 8 oz. pre-mordanted.
Mordant: Bluestone.
Enamel kettle.
Plant Material: 3 pounds fresh, whole plant.
2 gallons of water.

METHOD

Cut up the plants. Cover with water and cook 1 hour. Cool, strain. When lukewarm add wetted, pre-mordanted wool. Simmer 40 minutes. Cool in dyebath. Rinse till clear. Dry in the shade.

NOTE: A yellow may be obtained by soaking the pre-mordanted wool for 5 days in the after dyebath. Also, try iron kettle or handful of rusty nails. This dye will keep when strained and bottled.



“Flowering Rhubarb”

A pen and ink drawing by
Agnes Gallus - 1969

Saskatchewan Arts Board
Collection

The roots of the rhubarb plant
are a rich source of colour.

RHUBARB ROOT

Colour: yellow to brown, depending on mordant and rinse used.
Wool: 8 oz. pre-mordanted.
Mordant: Chrome, ammonia rinse.
Plant Material: 1 rhubarb root dug from garden.
Enamel kettle.
2 gallons of water.

METHOD

Cut rhubarb root in small pieces. If dry, let soak for 2 days. Cook 1 hour, cool, strain. Add more water and cook for another 15 to 20 minutes. Strain and add to previous dyebath. When lukewarm, add wool, pre-mordanted, and simmer for 30 minutes or till colour is satisfactory. An ammonia rinse of 2 tablespoons ammonia to 2 gallons of water can be used. Add the wool to the rinse of the same temperature. Remove when colour is good. Rinse till clear. Dry in the shade. Rhubarb leaves can also be used for dye. Remember: they are poisonous.

UMBILICARIA (Lichen)

The famous Umbilicaria Pustulata is not found in Saskatchewan but a relative, the Umbilicaria Muehlenbergia, grows in the north where the temperature is cool and moist. It is a blackish looking foliose lichen and it adheres to rocks. It gives a magenta colour. Again, it takes years to grow. Do not be greedy when gathering. The colouring agent in the Umbilicaria is the orchil, which has to be released by fermentation.

METHOD

To set up a dyebath, crush one cup of lichen with a rollingpin or a bottle. Put the crushed lichen in a large jar, a 2 qt. sealer, or a 128 oz. jar. In case there is a metal lid involved, cover the inside of the lid with clean wax paper. Be careful when putting the lichen in the bottle as the dust from it contains colour too. To the crushed lichen, add 1 cup of ammonia and 3 cups of water. Fasten the lid on tight. For one week, shake the bottle 6 or more times a day or stir with a non-metal spoon or stick. After that you reduce the times down to once a week. It will take from 3 to 4 weeks for the brew to stop fermenting. I used a 128 oz. jar because it gave me more room to dye later.

TO DYE:

Put 2 oz. of unmordanted wetted wool in the dye and leave till a good colour has developed on it. Take it out and squeeze the dye out of it back into the jar. This process can be repeated until the dye is exhausted. At first you will get a good, strong colour after several hours. As the dye gets weaker it will take longer, perhaps three or four days. When the dyebath gets low, add a cup or two of water and stir well. Let settle before starting to dye again. Rinse all wool until clear. Dry in the shade.

Hot Pink - made with an almost exhausted dye: put about 2 1/2 oz. wool in the jar and leave for 3 days. Lift out and put in kettle with lukewarm water. Barely simmer for 1 hour. The pink develops during the simmering.

WILD SUNFLOWER (Helianthus Subtuberosus)

Colour: deep yellow.
Wool: 8 oz. pre-mordanted.
Mordant: Tin
Plant Material: 40 oz. fresh flowers.
Enamel kettle.
2 gallons of water.

METHOD

Cut flowers up. Cook 1 hour. Cool, strain. When dyebath is lukewarm, add well wetted wool, simmer 1/2 hour. Cool, till wool can be handled. Prepare an ammonia rinse of the same temperature as the wool. Add wool, leave 8 to 10 minutes, then rinse till clear. Dry in the shade.

NOTE: Wool pre-mordanted with Bluestone can also be used. This will result in a greenish colour. The same method can be applied as for Alum mordanted wool.

WOLFWILLOW (Elaeagnus Commutata)

Silver Berry
#1 Colour: Green.
Wool: 8 oz. pre-mordanted.
Mordant: Bluestone.
Plant Material: 20 oz. leaves, twigs and bark.
Enamel kettle.
2 gallons of water.

METHOD

Chop twigs, leaves and bark. Soak for two days. Cook for 1 hour, cool, strain. When lukewarm, add enough water to make 2 gallons of dyebath. Add pre-mordanted wool, well wetted. Simmer for 30 minutes or until colour suits. Let cool in dyebath. Rinse until clear. Dry in the shade.

WOLFWILLOW

#2 Colour: Green, dark.

Wool: 8 oz. pre-mordanted.

Mordant: Bluestone, Ferrous Sulphate (Iron) after dyebath.

Plant Material: 20 oz. leaves, twigs, bark..

Enamel kettle.

2 gallons of water.

METHOD

Chop leaves, twigs, and bark. Soak for 2 days. Cook 1 hour, cool, strain. When lukewarm, add well wetted, pre-mordanted wool. Simmer for 25 minutes. Lift wool out and add 1/2 tsp. of Iron, dissolved in a cup of water. Stir well. Put wool back in kettle and simmer for 20 minutes. Let cool enough to handle and rinse in water of the same temperature till clear. Dry in the shade.

WOLFWILLOW

#3 Colour: Grey.

Wool: 8 oz. not mordanted.

Mordant: 3/4 tsp. Iron.

Plant Material: 12 oz. berries.

Enamel kettle.

2 gallons of water.

METHOD

Cook berries for 1 hour. Mash with dye cup while cooking. Cool, strain. When lukewarm, add well wetted, unmordanted wool to dyebath. Simmer for 1 hour. Lift out wool and add 3/4 tsp. Iron, well dissolved in 1 cup water. Stir well, put wool back in dyepot. Simmer for 20 minutes or till colour suits. Let cool to handle. Rinse in water of the same temperature as the wool, till clear. Dry in the shade.

IN CONCLUSION

The plants given here are easy to obtain and are all growing in Saskatchewan. This does not mean that they do not grow elsewhere as well. It means though, that colour does exist right outside your door and is there for the gathering. There are so many plants just waiting for you and your dyepot.

If you like colours and like working with colours and the dyebug has bitten you, you will have many profitable hours ahead of you.

I warn you to take a second suitcase with you on your vacations and trips so you can fill it with dyeplants that you cannot find at home. Even if you go to the northern part of our province, take that suitcase. There is much up there that is different in barks, leaves and lichens. You may not be able to identify them right away but you can have your dye and find the names later.

Use your local or regional library as a source of good dyebooks. Experiment and develop your own methods. Try oven dyeing, the one-pot method, and the after dye mordanting. Each method will add more to your knowledge and experience. There is no limit to what you can do and to what you can expect in rewarding results.

Here's to dyers, and many happy and satisfying hours of gathering plants and dyeing!

BOOKS

SERIES OF SMALL BOOKLETS: "COMMON MARSHPLANTS OF SASKATCHEWAN",
"WILDFLOWERS WESTERN AREA", "WOODLAND WILDFLOWERS",etc.

LLOYD T. CARMICHAEL,

SASKATCHEWAN MUSEUM OF NATURAL HISTORY — REGINA, SASKATCHEWAN

DYEPLANTS AND DYEING
BROOKLYN BOTANIC GARDEN
1000 WASHINGTON AVENUE
BROOKLYN, N.Y. 11225
BOOKS #1 & #2

VEGETABLE DYEING
ALMA LESCH
WATSON GUPTILL PUBLICATIONS,
NEW YORK

LICHENS FOR VEGETABLE DYEING
EILEEN BOLTON
ROBIN—RUSS HANDWEAVERS
533 NORTH ADAMS STREET
McMINNVILLE, OREGON. 97128

WILD PLANTS OF THE CANADIAN
PRAIRIES — A.C. BUDD
CANADA DEPT. OF AGRICULTURE
QUEEN'S PRINTER — OTTAWA,
ONTARIO

NATIVE MANITOBA PLANTS IN BOG BUSH
AND PRAIRIE BY HECTOR McDONALD —
MANITOBA DEPARTMENT OF AGRICULTURE
WINNIPEG, MANITOBA. #452

WILD FLOWERS OF THE PRAIRIE
PROVINCES
BY ELIZABETH BURNETT FLOCK

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NEW YORK

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