

Straw into Gold - or How to Grow Your Own Towels



FROM FLAX TO LINEN

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We all know the story of Rumpelstiltskin and the princess. The poor princess was left with a room full of STRAW that needed to be spun in to gold. Now, how in the world is that even possible?

Most people imagine that gold as coins or some form of metal. It more than likely was not. The only valuable straw in those days was FLAX STRAW. Just what was that? Flax was a VERY SPECIAL kind of straw that girls and women could spin into linen yarn to make cloth - linen cloth, so snowy white and precious it could be sold for much gold.

What is Flax?

Flax is a plant with pretty blue or white flowers cultivated for its long stems or its seeds. The seeds can be used in baking or to give us linseed oil used in many things like paint solvents and wood finishes. The stems, if processed properly, give us linen - used since the Bronze Age for clothing and textiles for the home.

The mummies of ancient Egypt were wrapped in strips of linen. In Europe, before cotton was known, the people knew two fibers - wool and flax. Linen was the fabric of choice for underclothing, towels, bed coverings, and just about anything else that wouldn't be practical in wool.



Processing flax into linen cloth is a very long and difficult process.

After the plant is sowed, it is weeded when about 4" tall. From then it just grows until after the pretty flowers wilt and the seeds ripen.

Then it is harvested - carefully - by hand or machine. To avoid breaking off any of the precious fibers, it must be pulled up with the roots still attached. Then the pulled plants are stacked in sheaves to dry.

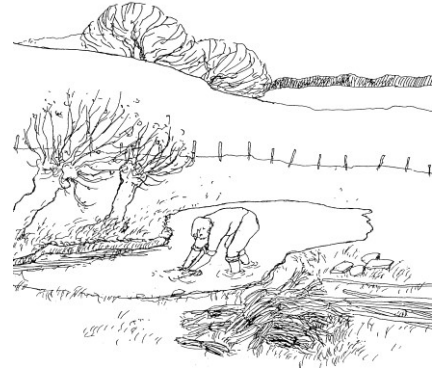
When the stems are dry, the seeds - valuable also in fiber flax - are pulled off using what looks like an upturned moss rake from your garden. These seeds are kept for planting next year and using around the home for oil or baking.



Now that we have the plant harvested and dried it is necessary to wet it again to rot off the plant material covering up the fibers. It can be placed in a stream or lake and soaked for a few days. This can lead to a lack of oxygen in the water and cannot be done just anywhere. The straw may also be placed on its side out on the field and allowed to soak up the nightly dew. It is then turned frequently until the desired amount of rotting has taken place.

To test for the right stage, a stalk is taken in the hands, broken and checked to see that the fibers separate from the rest of the stem easily.

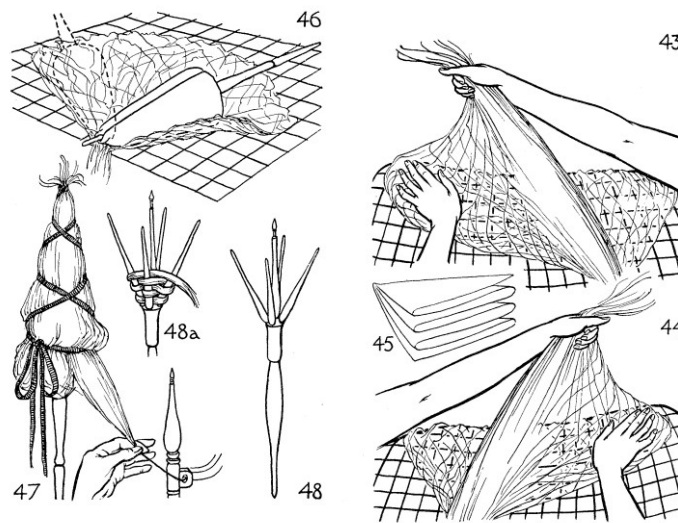
After retting, the flax is dried again and stored until it is time to spin the fibers into yarn. These stems, dried the second time, can be stored for years without any deterioration as flax resists mildew and other weathering influences.



To prepare flax for spinning, a whole village was involved. The dried stems are first **BROKEN** in a flax break. This is a wooden device that beats on the stem to make the chaff fly away. When as much chaff as possible has been removed, the flax is swung - over a board with a wooden knife to get rid of still more chaff and loosen up the fiber bundle.

Then the flax is hackled. This is done over a bed of wires that not only looks dangerous - it is. These metal nails comb the fiber and leave a lovely shining bundle of fiber grey or wheat in color, depending on the method used to rot the chaff away.

This "strick" of flax is now ready to be dressed on a distaff and spun on a spinning wheel.

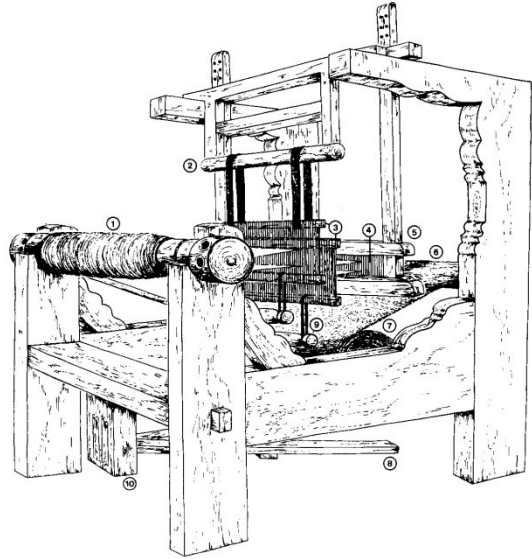


The spun yarn is reeled off into skeins and either woven in its natural color, or possibly bleached or dyed before weaving.

Linen cloth is woven on a loom. The loom must be carefully prepared because linen is not very elastic and does not forgive many mistakes. The weaver throws the shuttle back and forth using old pattern ideas for towels and tablecloths.

After the cloth is woven, it is still not entirely finished. It must be washed and sewn. Possibly it will also be bleached. Many years ago, the farmers bleached their linen cloth by staking the lengths of cloth in the farmyard, sprinkling it daily with water and leaving it in the sun. The sunlight eventually produced snowy white linen.

After all this work it is no wonder that VERY expensive restaurants are the only ones with real white linen on the tables. It is also no wonder that when visiting someone who still uses fine linens that they are upset when someone spills catsup or gravy on the tablecloth. Fine linens will, however, with a bit of proper care, last much more than one lifetime.



Flax has given us much more than just cloth.

Think about some of the word we use -

Flaxen haired means the golden blond color of the fiber we are spinning.

A tow-head is usually meant as a little boy with unruly hair the color of the tow flax combed out during hackling.

Hackles - to raise someone's hackles is to irritate them greatly.

Having a closet of dirty linen - because linen is difficult to wash, it was used to the last piece and then ALL washed together.

TYPES OF LINEN FABRICS

Half Linen

A traditional European fabric, produced ever since ca. 1830 when cotton warp yarns became readily available. Usually cotton warp with linen weft, but could be reversed with linen warp and cotton weft.

Softer than pure linen. Generally easier to weave with elastic cotton warp.

Easier to launder and iron.

Good way to put lasting color in household fabrics because cottons don't fade as quickly.

Half Linen with Cottolin yarns

Recently developed yarn. Uses "cottonized" short fiber linen. Interesting yarn, but rather expensive. Colors not as permanent as price would indicate. Fabrics from Cottolin yarns ARE lovely. Provides both color intensity and elasticity lacking in pure linen.

Pure Linen

Beautiful, traditional fabric.

Tends to be quite stiff when new but softens with repeated washing.

Probably a bit difficult for beginners.

Quite expensive.

TIPS FOR WEAVING WITH LINEN YARNS

While linen is one of the strongest yarns available, it is NOT resistant to abrasion. This means that in the reed, a linen warp will produce a lot of lint and possibly wear through. It is advisable to size linen warps to prevent this.

This sensitivity to abrasion also plays a role in caring for linens. Do NOT iron creases into your linens (also machine woven) or they will one day crack along these creases. Prolonged exposure to a washing machine agitator is also not very good. If access to a front loader is available, this would be preferred.

Linen yarn is relatively inelastic. This means that the warp must be wound on as evenly as possible. Use plenty of warp sticks or place newspaper between layers.

Be careful throwing the shuttle on a linen warp. Snags from hitting warp threads do NOT shrink back in, but remain loose throughout the rest of the warp.

Linen does NOT retain dyestuffs as well as other fibers. New fiber reactive dyes on the market (especially in European yarns) may lead to bleeding and fading. To set these dyes, the FIRST washing (or contact with water) must be with water HOTTHER than any expected later laundry cycle. That is, if the object might be subjected to a HOT cycle, pour boiling water over the newly woven fabric. This will permanently set the dye up to the temperature used in this finishing step.

Objects subject to frequent laundering might be designed to have color in cotton yarns and the linen left natural or bleached.

Don't forget about the old-fashioned way to bleach linens by leaving them dampened in the sunlight for several days. It is still a good way to get gravy stains out of precious table linens.

All linens will tend to whiteness. As lovely as

natural colored linens are, they ALL will gradually fade into a snowy white. Yarns slightly bleached before weaving will reach this white much more quickly than the darker raw yarns. Hand washing will aid in retaining the natural color longer.

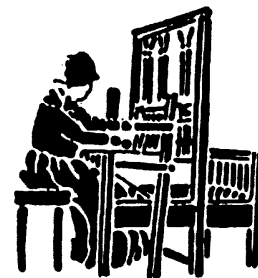
Linen behaves far better with high humidity. Generations ago, linen weavers sat in damp basements to produce a finer product. Midwestern summer weather is perfect for keeping linens in line.

If the natural humidity isn't enough, Bobbins may be dampened (best if plastic or stainless bobbins are used) Warp may be misted with water (or add a little starch to protect the threads) Also, after weaving, always iron when damp or with PLENTY of steam.

Linen doesn't shrink. When planning a project take this into account.

The piece will remain very nearly the same size it appeared on the loom. This means that set should be carefully monitored as it will remain as seen on the loom.

Wind linen bobbins carefully. Whatever technique is used, care and precision are required to keep the subborn thread from jumpin off the bobbin onto the axle of the shuttle. Not a fatal flaw, but VERY annoying.



WEAVING SET AND YARN QUANTITIES

Information about Linen Yarn Numbering (Count)

Linen is generally sold in weights corresponding to the number of LEAS in a pound. A LEA is 300 yards (275 meters). Yarn was measured in length/weight unit very early to prevent cheating by spinners/mills. If yarns were washed or mordanted in heavy metal salts, their weight could be raised by as much as 15%.

The length per weight unit of linen yarns is measured with unbleached yarns. If the yarns have been partially or completely bleached, the result is a loss of weight resulting in more yards per unit. For this reason, bleached yarns may be considerably more expensive, but yield more.

Inches, Feet and Pounds

Nell: This numbering system refers to the ENGLISH measuring system for yarns.

A 16/1 linen has 16 x 300 yards (4800 yards) per pound and is a single yarn.

A 16/2 linen has 8 x 300 yards (2400 yards) per pound and is a 2-ply yarn.

A 10/1 linen has 10 x 300 yards (3000 yards) per pound and is a single yarn.

Surprising is that because the half-kilogram is 10% more than the English pound, and the meter is 10% more than the English yard, the number of meters per kilogram of any yarn is the yards per pound x 2 or doubled.

Sett

As linen yarns are rather fine, this might be a good time to begin calculating sett using centimeters rather than inches. First, wrap yarn as close together as possible without overlapping around a measured segment (1 cm. or 1 inch). For a good solid tabby, divide the wraps/unit by 2. Then add 1 or 2 threads for a cm. Or 2-4 for an inch for good measure. A solid twill results in taking this tabby figure and multiplying by 1.5 or a little bit more. For transparencies use about half the threads needed for tabby. For lace weaves, make the tabby a bit looser. This is NOT an exact measurement, but will over time help an experienced weaver eyeball yarns.

Centimeters, Meters and Kilograms

NM: This numbering system refers to the METRIC measuring system for yarns.

The number before the slash refers to the number of 1000 meters per kilogram of a single strand. the number after the slash indicated the number of strands in the finished yarn.

A 6/1 linen would have ca. 6000 meters per kilogram and is a single.

A 6/2 linen would have ca. 3000 meters per kilogram and is a 2-ply.

Divide the number of meters in a kilogram by number of plies to determine how many yards per pound.

TEX: tex is the number of grams in 100 meters of yarn. This runs counter to the other systems - small numbers are very fine yarns, larger numbers indicate coarser yarn.

These measures give a reasonable comparison of yarn weights, but do not give a reflection on yarn diameter. Depending on twist and spinning methods, yarns with the same number MIGHT appear quite different and produce different results on the loom. It is definitely a plus to order from sample cards where the merchandise may be studied before ordering.

As linen yarns tend to be quite expensive, it is important to know how many yards are needed before beginning a project.

Recommended Reading

Baines, Patricia

Flax and Linen

ISBN 0-85263-727-6

Shire Publications 1985

A short Shire book with good summary of linen history, processing and spinning.

Baines, Patricia

Linen, Hand spinning and Weaving

B.T. Batsford, London, 1989

ISBN 0-934026-52-1

Good general information book on flax/linen from start to finish.

Barber, Elizabeth Wayland

Women's Work, The First 20,000 Years

Norton, New York, 1994

ISBN 0-393-033506-9

New book - written by an archeologist influenced by a weaving mother. A must for every woman who is a serious weaver - especially into linens. Goes behind and beyond smaller ethnic traditions back to the caves of Lascaux.

Davison, Marguerite Porter

A Handweavers Pattern Book

M.P. Davison, Swarthmore, PA 1944

ISBN 0-9603172-0-1

Standard collection of weaving patterns. Many beautifully suited to linens.

DeWilde, Burt

Flax in Flanders through the Centuries

ISBN 90--209-3860-6

Lannoo, 1999

Belgian book in English, excellent history of growing and processing flax. Many interesting drawings and photos.

Note: For a more in-depth listing of books pertaining to flax and linen, see my library listing on the Internet at:

www.woolgatherers.com/id129.htm

Heinrich, Linda

The Magic of Linen

Orca Publishers, Victoria, B.C., Canada, 1992

ISBN 0-920501-67-2

Lots of information on linen - from seeding to finishing woven fabric. Many lovely old photos. Out of print, hard to find.

Hochberg, Bette

Fibre Facts

Bette Hochberg, Santa Cruz, CA, 1981

ISBN 0-9600990-6-9

Detailed descriptions of properties of most natural fibers. Good for reference.

Meek, Kati Reeder

Reflection of A Flaxen Past

ISBN 0-9700648-0-2

Self Published, 2001

Excellent blend of flax traditions from Lithuania and instructions to process flax today.

Muller, Donna

Handwoven Laces

Interweave Press, Loveland, CO, 1991

ISBN 0-934026-66-1

Excellent description of most common lace weaving techniques - particularly lovely done in linen.

Strickler, Carol

A Weaver's Book of 8-Shaft Patterns

Interweave Press, Loveland, CO, 1991

ISBN 0-934026-67-X

Excellent collection of patterns, many suited to linens.

Zinsendorf, Christian and Johannes

The Big Book of Flax

Schiffer Publishing, 2011

Comprehensive book on flax lore, cultivation and processing.