

Hemp

Cannabis Sativa L

Git Skoglund is paramount in the area of research around hemp in a textile context. This article gives an outline of the plant's cultivation, history and usage. Follow on with the fascinating account of Transylvanian hemp.

Hemp is a cultivated plant, which, like flax, is grown both for oil and fibre. Its cultural history stretches back to prehistoric times, as shown by the hemp seed and textiles discovered in archaeological finds in Asia and Europe. The earliest indications of hemp in Sweden are currently dated to around 100 AD, based on pollen analysis of finds from Rödön, Jämtland. However, its main significance has been primarily in its fibre form, as spinning material, both in Sweden and worldwide. During the Middle Ages and up to the 19th century, hemp was cultivated extensively in several European countries. The plant originated in Asia, where there is also a wild variety. In China, hemp cloth was used, alongside woollen cloth, for everyday wear, and in Japan, hemp was the first plant fibre to be spun into thread for textiles.

It was thought for quite some time that hemp was introduced into Sweden by the Vikings in the early mediaeval period, but this has been proved incorrect by pollen analysis that shows the plant grew there well before. This means that hemp and flax are two highly significant textile fibre plants demonstrably growing in Sweden at a similar time. The difficulty in identifying historic cloth made of these plant fibres has meant that, typically, finds of cloth from plant fibre have been cited as made of flax. There are several problems in distinguishing one from the other, including the fact that under the microscope, the fibre cells are too similar to be distinguished. DNA testing is also unreliable, as the textile fibres contain no live nuclei. On-going research, however, has shown that there is a way to analyze the fibre with specialized microscopes used for geological research.

HEMP WAS PROBABLY INTRODUCED TO EUROPE by the Scythians, a nomadic people from the south of presentday Russia. Gradually, countries such as France, England and Italy became the areas where considerable quantities of hemp cloth were made from the Middle Ages through to the 19th century. Finer qualities were also produced, and given names such as canvas, dowlas and harden. These cloths are sometimes collectively termed linen, but should not be confused with those made from flax fibre. The words "linne" and flax ("lin") have different origins. "Linne" comes from the German "Leinwand" (meaning plain weave) and refers to a plain cloth woven out of thread from a plant fibre. The word "lin", flax, comes from the Latin name for flax (*Linum Usitatissimum* L).

In English, there is a clearer difference, with the word flax used for the plant itself. For example, in the "Workwomans Guide", 1838, in mentioning the best linens for bedding, it states in the text, "The best linen is the Suffolk hemp." Linen ("linne"), then, does not indicate a cloth made of flax. In Sweden, the word "läfft" was formerly used for this kind of cloth. The text is evidence that good quality hemp, especially that growing in Suffolk, could be used to make bedlinen and other durable cloths.

BOTH HEMP AND FLAX FIBRE for use in spinning were on the decline by the end of the 19th century. Cotton spinning mills had been established all over Europe, and with the advent of industrialism, our indigenous spinning fibres pretty well disappeared. The first industrial spinning machinery adapted for hemp and flax was introduced into many European countries at a later date than cotton spinning machinery. There are significantly greater complications involved in the industrial production of thread from long-fibred plants, compared with thread from short cotton fibres. Nevertheless, hemp and flax cultivation was reinvigorated at the beginning of the 20th century, and especially during WW11. At that time, many governments in Europe decided to provide financial support for domestic processing, and in Sweden also for rope and packing manufacture. Prior to this, Swedish grown hemp had not been used that much in factory production. On the other hand, a lot of strong hemp fibre had been imported for the Swedish Crown ship building when it emerged as a great power. This hemp came from Russia, and was then shipped off to the ropewalks, which were frequently set up by ports. Swedish hemp was mostly cultivated on farms, for self-subsistence, to make cloth for daily use. It frequently grew by the corners of houses, in the garden or on swamps and marshland, where no other crops could be grown. This type of hemp did not grow very high, and was more slender and fragile.

Hemp has also played an important part, in many countries, in paper production and the beneficial seed is used in animal and human foodstuffs, as well as processed to make lamp and varnish oil. Hemp seed has a high protein content and can be pressed into a fatty, nutritious oil.

IN BRIEF, FOLK TEXTILES made from hemp and flax for daily usage cannot be identified by eye alone, the plants are not related to each other, but have a similar cell structure which means they have similar properties. Hemp is, moreover, a plant closely related to hops, *Humulus Lupulus* L. The cloth is strong, dirt repellent, mildew resistant and turns soft and white after regular washing and usage. It also has an antiseptic property. Hemp and flax are harvested and processed in similar manner, the fibres held within the bast have to be released by means of a microbiological "retting" process. To obtain fine fibre for functional textiles, the grower needs to understand the soil and types of seed. In addition, the plants should be harvested before the seed ripens in order to produce the finest quality cloth. If not, the fibre coarsens, which is the same for both hemp and flax. If the plants are harvested before the seed ripens, the yarn can be spun fine and develop a high lustre. Traditionally, however, it could be too much to expect people on a self-subsistent farm to hold back at the seed ripening stage, as they would otherwise have to buy in new seed for the next growing season. In Sweden, flax cultivation increased during the 18th century: flax thread can be made finer and more lustrous

than hemp yarn. This meant that flax became worth more than hemp and was increasingly more saleable, providing well needed additional income for a farmer. Hemp and flax do not grow well in the same soil, flax was grown on well ploughed arable land containing some sand, a good soil that also needed more tilling. Hemp was easier to grow, but this was not the practice to any greater degree in Sweden before the wars of the 20th century. At that point, factory processing of the fibre was subsidized by the government and when this support was withdrawn in the 1960s, virtually all hemp cultivation in Sweden came to an end. Then, when in 1972, statutory prohibition was introduced in Sweden to stop hemp growing, hardly anyone opposed it.

The processes involved in making yarn out of plant fibre were, and are, very time-consuming and arduous, and therefore very costly. Because of the labour intensive processing, it is nowadays mostly carried out in low-income countries. China has rapidly taken over both parts of the processing and the whole of production. Hemp, in particular, is grown and processed in China and hemp textiles are produced there. Flax is not native to China and therefore marginally cultivated. These days, European grown flax fibre is sent off to China to be processed into yarn, after which the linen yarn is returned to Europe.

Hemp was formerly, along with ramie (Chinese nettle), the most common type of plant fibre used in China for textile production. Today, there is even a hemp research institute in Beijing, where the research areas include seed breeding. This hemp is not the same kind as European hemp, but actually an industrial hemp, developed to produce industrial textiles. Chinese hemp grows mainly in lime-rich mountainous areas and there are currently only some small-scale farmers growing hemp and taking the fibre to be spun at spinning mills. New technological solutions applied to processing include the "cottonization" of the fibre for hemp textile production. The fibre is broken down with enzymes that also make it shorter. Subsequently, these fibres can be spun with machinery more akin to that used for cotton spinning. This has proved an effective and profitable development, since the spinning is faster, while the fibres are soft and easier to blend with other natural materials. The disadvantage of having these shorter fibres is that certain properties, especially strength, deteriorate somewhat in quality, though overall the hemp fibre serves to improve quality. Blends of hemp with other materials such as cotton, wool and viscose keep appearing on the textile market.

Cannabis Sativa L is the Latin name for the kind of hemp, cultivated for thousands of years all round the world, which goes into products such as textiles, paper, oil and now building materials as well as other goods. All hemp plants contain greater or smaller amounts of the psychoactive substance, THC (Tetrahydrocannabinol). This substance has been put to medicinal use, but during the 20th century was increasingly used in the production of drugs. This is why hemp cultivation has by and large been prohibited for private use in most countries. Within the EU, the cultivation of particular types of hemp is regulated: these types are

Quality cloths were made, called by names such as canvas, dowlas and harden. These fabrics are sometimes collectively referred to as linen, which should not be confused with the plant from which linen thread is produced (flax). The Swedish "linne" and flax are not the same. "Linne" is derived from the German word, "Leinwand".

categorized as industrial hemp, containing a minimal amount of THC, only 0.02%. Industrial hemp has to be used for industrial production and grown under controlled conditions. In Sweden, it is the Swedish Board of Agriculture that handles applications. Bear in mind, though, that these types of specially bred seeds are not the same as the traditional, where the aim was to grow fibre for textile use. Instead, industrial hemp needs to have a higher yield and return. The plant also needs to be well fertilized. The pre-conception that hemp grows like a weed on poor soil is a fallacy, since hemp requires the right soil and conditions. If these are not available, the soil needs to be enriched with ordinary manure or artificial fertilizer. Hemp used to be cultivated in areas with mineral-rich soils, or organogenic soil with a high lime and nitrogen content, especially around the marshes and streams in Jämtland, Västerbotten, Gotland, Mälardalen and parts of Västergötland, Halland, Småland and Skåne. On the other hand, hemp does not require any weed control, the leafy inflorescence shuts out any sunlight, preventing weeds taking root. This makes it nowadays an exceptionally environmentally friendly plant, which allows nutrients into the soil by means of a root system that loosens up the soil for the next season. Traditional hemp, cultivated all

round the world, contains a medium level of THC, as defined. There is another type, Cannabis Indica L, which has a very high level of THC and requires a tropical climate for growth. That type originated in India. The Latin family name, Cannabis, has often been applied to the drug, for which other forms of slang like hash, marijuana and ganja are in use. In referring to the products of this plant, however, the word "hemp" is ordinarily used (Swedish hampa, French chanvre, German Hanf).

By entering the EU, a country has to adopt the same regulations as apply to all members, which has meant that textile hemp, or "farm hemp" as it is called has disappeared in Europe. Instead, industrial hemp cultivation is all that is permitted, and has found a new niche market, for example in the building and insulation industry, for bio-energy and as components for the transport industry. Industrial hemp in Europe does not produce the same kind of fine fibre as used for making traditional functional textiles. The plant can grow up to six metres high, all parts of the plant can be used. Industrial research has shown hemp fibre and shives to have an important advantage: they are strong as well as lightweight simultaneously. This positive attribute is employed to reduce the weight of components in trains, planes and cars. Another advantage is that this strength is not impaired, even with big temperature fluctuations. Hemp shives are used as reinforcement within the building sector in cement, clay or lime. The fibre has high tensile strength, especially in damp conditions, and is at the same time especially resistant to mould and dirt-repellent. Hemp fibre provides heat insulation and also blocks out UV rays. And over and above all this, the fibres absorb moisture and dry out fast. Even small amounts of parts of the plant considerably improve the quality in a range of products. Once used, hemp can moreover quickly be returned to the natural cycle.

TEXT AND PHOTO GIT SKOGLUND





Transylvanian hemp

TEXT AND PHOTO GIT SKOGLUND

Transylvania is a region in Romania, bordering on Hungary, Ukraine and Moldova. There is a well preserved bank of textile knowledge amongst the older generation with regard to handspun and handwoven linen textiles. The giddy heights of the Transylvanian mountains are cut through with many watercourses, rivers and brooks, bringing with them mineral-rich water that is especially valuable for hemp cultivation. This is the setting in which the plant has thrived for hundreds of years on self-subsistent smallholdings. Yet just ten years ago, cultivation in Transylvania stopped.

IT MAY BE WORTH MENTIONING, THE WORD “LINNE” only refers to a plain cloth made from a plant fibre, and does not specify a cloth made out of flax. This means that “linne” could be of hemp, flax, nettle or cotton. Discerning which of these materials a Transylvanian “linne” textile is made from is not exactly straightforward.

The older domestic textiles have a charm in the way they have been stitched up by hand, from panels usually about 50 cm wide, the typical weaving width of a traditional domestic loom. The costume fabrics are fantastically finely woven, with an abundance of pattern embroidery.

In Sweden, the word “lärf” was formerly used for this type of textile, denoting all types of vegetable fibre. The word “linne” became more prevalent towards the end of the 19th century and derives from the German “Leinwand”, meaning “lärf”. In time, “linne” was construed as a textile variant of the Latin name of the plant, *Linum*, which is not the same thing at all.

In modern textile literature, it is not always apparent that hemp (Romanian “canepa”) used to be the predominant fibre in the production of plant fibre cloth in many countries, especially Balkan.

THERE ARE FASCINATING SIMILARITIES to be found between our preserved Nordic “linne” and textiles from the Balkans. It is also especially interesting to see the connection between the natural conditions of those countries, such as climate and soil, which are important factors in all textile fibre cultivation.

HEMP NEEDS A LOT OF LIMESTONE AND NITROGEN as well as many hours of sunshine to thrive well. These are some of the elements shared by the northern areas with several other European countries. There are also similarities in the simple types of structure used for textiles, along with dyed stripes and handstitched seams and embroidery.

Once Romania became a member of the EU, it meant that traditional hemp cultivation was prohibited in the country. Instead, only industrial hemp is allowed, which means that only approved breeds of seed can be used, which produce a high yield for industrial purposes.

Industrial hemp, however, is not particularly good for producing finer textiles (see the preceding article), since it is not the diameter of the plant which determines the fine quality of thread for weaving cloth. Instead, it is a considerably shorter and more delicate plant that gives a hemp cloth its characteristic strength, softness and texture.

The older women of Transylvania can easily tell the difference between a hemp or linen cloth.

– I can see it is hemp by the colour and the fibre, said Florea Iona, who lives in the little village of Ieud and runs a washing mill there.

She laughed at my question, since for her it is quite obvious that there is a shift of colour and hemp cloth has a softness and weight that distinguishes it from other plant fibre cloth.

Florea Iona has spun and woven hemp yarn for the best

p. 22 from the left, Woman's costume of hemp. “Linne” textiles, made of hemp. Transylvanian hemp, from both the male and female plants.

Above, Transylvanian loom. Hemp tow.

p. 24 14th century church with hemp canvas painting.

part of her life. When I asked her if she was considering carrying on her domestic production, she shook her head and explained hemp cultivation was no longer allowed, though she likes spinning fleece and brings out her loom in the colder part of the year to make big long-pile woolen plaids to sell.

IT IS COMMONLY ACCEPTED that the women have always done the textile work, but the men in Transylvania can discuss traditional farming methods.

– It was the former Communist regime that was all for flax being cultivated here in Transylvania, said the man who runs the privately run open-air museum in Ieud.

Hemp as well as flax are cultivated at the museum to demonstrate how the fibres are then processed. He showed how the long hemp fibres were sorted: first for the finest tow, but then processed the same way as flax through breaking, scutching and hackling.

While describing this, he demonstrated with his hand how the hemp grows to just over 1.5 metres high. The stalks are pulled up out of the soil, to rett in water. Traditionally grown hemp has both a male and female plant, each of which is pulled up at different points in time.

Both hemp and flax should ideally be harvested before the seeds ripen to obtain the finest and best fibres for spinning into yarn.

Not all farmsteads, clearly, could do without the seed produced in season, since the seed had to be used for next year's crop or in oil pressing. But if the crop was, nevertheless, harvested after the seed had ripened, fibres would be coarser and stiffer whichever plant fibre was used.

Folk textiles made of hemp and flax are therefore exceptionally difficult to tell apart with the naked eye. Despite the fact that these plants are quite distantly related, botanically speaking, their cell structure is similar. A person with experience of both materials can see and feel which is which. Both hemp and flax can, moreover, turn extremely white by bleaching in the sun and after a few washes.

However, what differentiates flax from hemp is the greater lustre obtained on the processed yarn. This property was not really a requisite in peasant life, rather the opposite, since glossy linen feels cool on the body and has no other outstanding function. Instead, warm textiles were more important in a mountain climate with cold winters. Hemp textiles have the capacity to provide warmth, as the fibre cells have a blunt-end, which means the spun yarn is more lofty.

Gradually, glossy linen became prized, not first and foremost on a self-subsistent farm, but amongst those higher up in society. To produce a glossy linen, it was not just a matter of harvesting



The wooden walls inside the church are painted in tempera, and canvas strips were inserted at the joins.

The word canvas was derived from the French word, “chanvre”, alluding to the Latin name for hemp, “Cannabis Sativa”.

the plant before the seed ripened, but also providing the flax with the right growing conditions.

Flax thrives in a totally different soil to that required by hemp. Moreover, if harvesting took place before the seed ripened, buying in fresh seed for the subsequent year could be problematic for a self-subsistent farmer.

Not all flax then is glossy and spun the way we are used to seeing it nowadays. Fine linen textiles with a lot of lustre have their own history, markedly different to folk textile production for daily use.

The village of Ieud has a wooden church, dated 1346. It is noteworthy not just because of its age, but also for its exceptional wall painting. This church has been undergoing renovation for several years, carried out by students at the Bucharest National University of Arts. The project has been led by

Professor Dana Postolache, who explained how the paintings were made, since they are executed on wood panels as well as strips of canvas. Both the paint and the cloth have remained in good condition for nearly 800 years. The canvas was woven out of hemp yarn, strong and very long-lasting for this purpose.

Canvas, “linne” and “lärf” are different terms for various qualities of cloth made from plant fibre. They display a range of colouring, structure and fineness, but all have the same function.

Soil conditions are highly significant in considering why a plant fibre is historically the earliest to be used by any given cultural grouping. The existence of preserved folk textiles is chiefly linked to how long the self-subsistent lifestyle has prevailed, and how quickly new ideas were taken up.

For example, hemp was for a long time the textile material used by countryfolk in France: the word canvas is derived from the French word, “chanvre”, alluding to the Latin name for hemp, “Cannabis Sativa”.

In Sweden, Jämtland and Västerbotten were the two regions where a self-subsistent lifestyle kept going the longest. Hemp grew best in Jämtland, and was easier to process: despite huge efforts made by county governors and other types of pressure, people in several parishes chose to stay with hemp, even though they knew flax was finer.

Hemp has been put to use in many different areas of life throughout the ages. The fact that hemp fibre is immensely strong when wet was a property used by seafarers. ■

Git Skoglund is a textile historian and journalist.

With support from various sources, including the Agnes Geijer Nordic Textile Foundation, she has made a study of historic and older textiles in order to find a suitable method for identifying and distinguishing hemp from flax fibre.

Further information at these websites:

www.hampatextil.com

www.gitskoglund.se