



Trade and Production of
Norwich Stuffs 1570–1815

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ran
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Jeanette Durrant

During the *The Norwich Shawl* exhibition at the Castle Museum in 1995, an elderly man wrote in the comments book that his mother used to tell them **“the river ran red”** referring to the madder dye being rinsed in the river Wensum.

The city of Norwich was built on the prosperity of the weaving trade, which was well established as early as the 14th century. The tidal river connects the city to the port of Great Yarmouth through the Broads, and allowed the direct trade of goods with Europe and the world.

Dutch and Walloon refugees known as 'The Strangers', were invited to Norwich in 1565 to boost a flagging local weaving industry and introduced light-weight figured cloth, woven on the drawloom. They made hybrid fabrics from worsted warps and woolen wefts which became known as 'new draperies'. Ups and downs in trade

caused by plague, wars, fires, or changes in fashion had a devastating effect on trade. The weavers responded with new innovations and distinctive luxury fabrics known as 'Norwich Stuffs'. These reached their height with the fashion for a mix of silk and worsted shawls from 1780 – 1860. The story of Norwich Stuffs is one of a pre-industrial economy and of interdependent highly skilled craftsmen and entrepreneurs.

The importance and manufacture of cloth in Norwich ended in the late 19th century, due to the reluctance of weavers to adapt to industrialisation and changes in fashion. High class shawls did not lend themselves to mechanical looms and in addition once the secret of the Norwich Red dyeing method had been 'pirated' to Yorkshire and Lancashire and the advent of chemical dyes, the luxury fabrics were priced out of competition.

It is hoped that this booklet whets the appetite for further investigation into the many processes and textiles produced in the city. The fabrics and machines have gone but traces of the people and their world are abundant particularly in Norwich, and can be found in museums in London, Europe, and Scandinavia.

Wool

WOOL

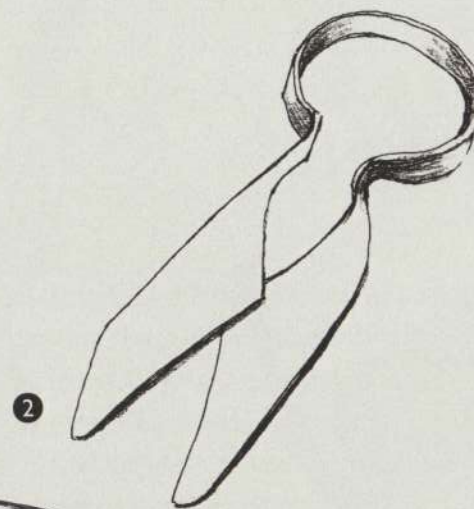
The hair of sheep is one of a limited range of animal fibres suitable for weaving. As wool it has been used as a textile fibre for clothing for over 6000 years. It is absorbent, naturally water repellent, flame resistant, and an excellent insulator. A hair of fleece is constructed of small overlapping scales which allow the fibre to bend without breaking giving it a springy quality. These scales catch each other during spinning helping the creation of yarn. Rubbing wool fibres against each other deforms the scales and matts them together causing felting and shrinkage especially when the wool is wet and the scales opened by soap and heat. By the end of the 10th century British wool exported to Flanders and Holland to make nouvelles draperies was considered to be the highest quality available until the development of Spanish merino wool in the 16th century.

Depending on the breed of sheep and its environment, fleece varies in length, crimp, and fineness. The crimp or curl of the fleece affects the finish or felting properties, and the diameter of a hair or 'staple' determines the number of yards that can be spun from a pound of wool. Quality varies according to where it grows on the sheep and bad sorting results in uneven spinning or take-up of dye. Within one fleece, there will be fine springy hair, thicker more brittle hair, and coarse straight

hair. The best wool comes from the shoulders, chest and sides. The 'wool sorter' removes impurities such as natural excretions and extra vegetable matter from it, then sorts it into grades discarding heavily stained parts and tail wool. It is shorn from live sheep using shears, or pulled from the skin of a sheep killed for meat which is considered inferior.

Fine long stapled wool over 4 inches is used for worsted spinning and is combed 'in the grease', which produces a stronger smooth yarn often used for the warp. Short stapled wool is carded before spinning, trapping air and making it good for knitting or felting. Spinning guilds in Norfolk still continue to do this.

Fulling or milling is a process of deliberately felting a fabric to give woven cloth cohesion, strength and weight. Incredibly, shrinkage in a heavily fullled woollen cloth can be as much as a third of the width. Luxury quality woollen cloth for medieval nouvelles draperies, was made from scoured very fine short stapled wool used in both warp and weft which was washed in a tub of tepid water containing three parts water to one part urine. It had to have butter or olive oil added after scouring to replace the natural lanolin removed and protect it from damage during combing, carding or spinning.



- 1 Sheep divided into grades of wool
- 2 Shearing shears
- 3 Diagram of scales of wool
- 4 Long staple wool
- 5 Short staple wool



Spinning

SPINNING

Spinning is a method of twisting fibres together to form a continuous thread and it takes six or seven spinners to produce enough wool to keep up with a weaver. Many legends and metaphors surround the craft in every culture and Goddesses are often represented as weavers or spinners. Most spinning is done by women and girls and valued as a skilled craft. After spinning, the yarn is wound into a skein or ball ready for weaving or dyeing.

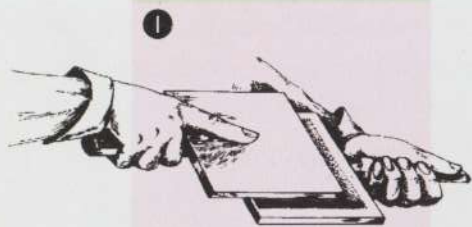
There are two basic techniques which produce yarns with a different character. The first and oldest method is on a 'drop spindle' which is done by drawing out a handful of cleaned, disentangled wool and twisting it together before winding the spun yarn round the bottom of a weighted stick. A 'distaff' (forked stick which holds the fibres while spinning and which is usually tucked under the left arm) carries the prepared wool and the right hand draws out the fibres twisting them onto a spindle. A 'whorl' made of wood or clay is attached to the bottom of the spindle to add weight and give momentum to the twisting. This method is done all over the world and known as 'distaff' or 'rock spinning' and makes a fine strong yarn. It was used for luxury cloth until the 18th century as it was easier to mix in other fibres such as silk or flax and maintain a consistent thickness. Modern mechanical spinning still cannot produce yarns of the same delicacy or versatility as a skilled distaff spinner.

The second method uses a spinning wheel which was invented towards the end of the middle ages. This enabled the spinning and winding to be done at the

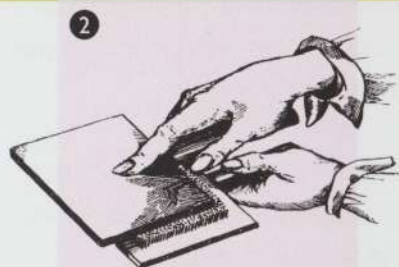
same time. The 'great wheel' was turned with a handle, and later the addition of a foot treadle allowed both hands to be free to concentrate on the yarn. Thread could be spun more quickly on a great wheel but produced inferior yarn which was under spun and uneven.

Depending on how the sorted fleece is prepared it makes either woollen or worsted yarn. A woollen yarn is made from scoured short staples and rolled into rolags using a pair of carders. It makes a fuller softer yarn which is good for knitting or felting but carded wool is considered weaker and prone to break when stretched under tension on the loom. The earliest record of carding is in 1331 in Florence. Worsted spinning uses combed long fibres, and produces a smooth, strong, lustrous yarn frequently used for the warp. It is often spun with the natural grease still in it. Some cloths are made entirely from one type of spinning, others use a worsted weft and woollen warp. From about the 14th century until the industrial revolution, the warp was combed and distaff spun, and the weft carded and spun on the spinning wheel producing cloth with the greatest felting potential for making fine woollens.

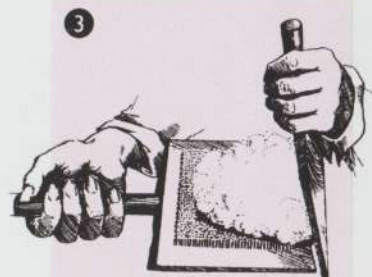
The first machine for spinning – The Spinning Jenny – was invented in 1764 by James Hargreaves and a fully industrialised machine for cotton spinning by Richard Arkwright in 1769. Hand-spinning by women and children under the control of 'wool-combers', continued to be favoured in Norwich until 1808 but finally the Albion Mills began power-spinning production of worsted yarn in 1836.



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1 Carding. Drawing out the fleece.

2 Combing back again.

3 Rolling the wool off into a rolag.

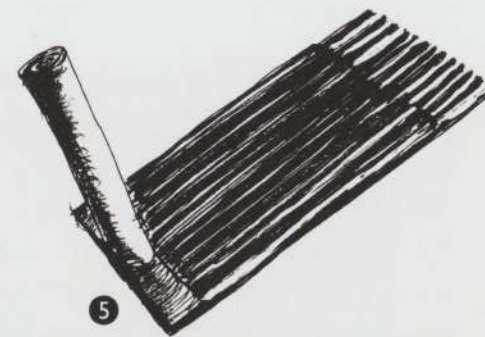
4 Medieval distaff spinner.

5 Comb for worsted wool.

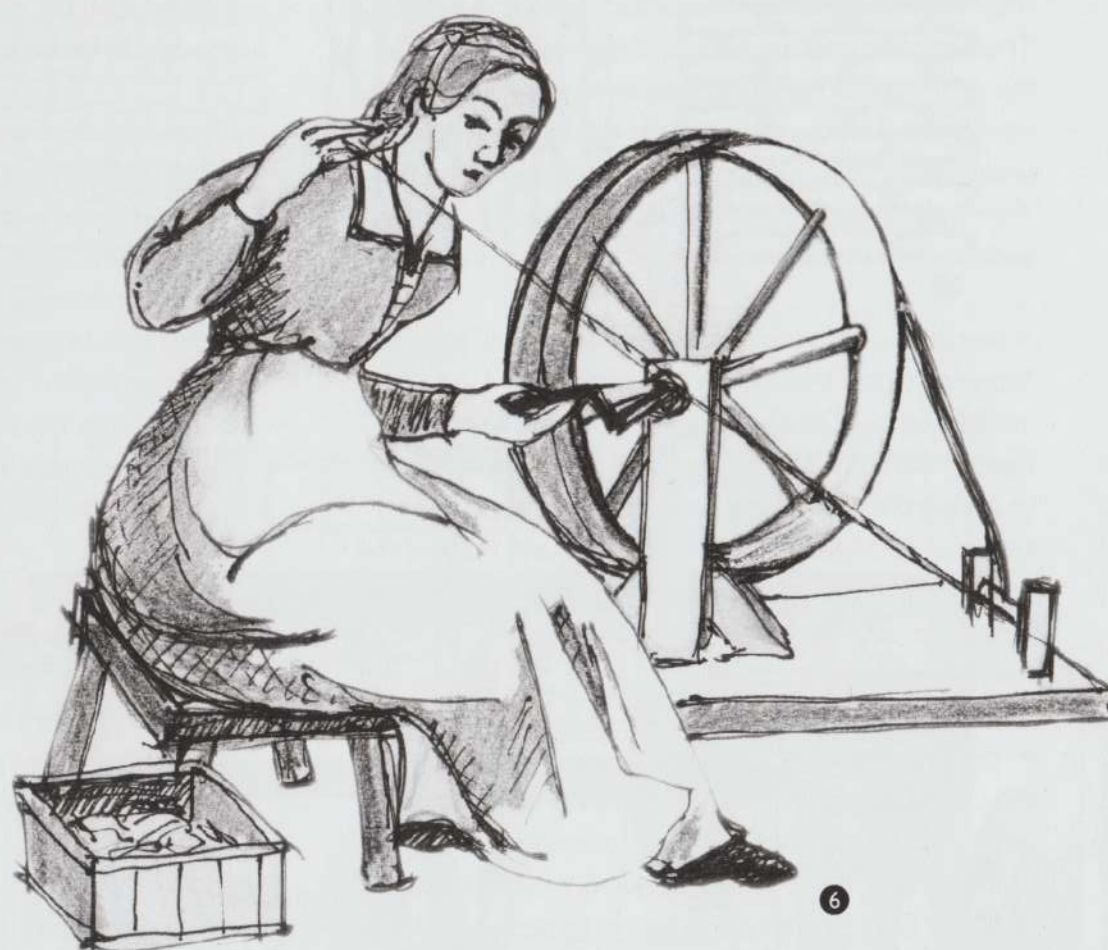
6 Spinning wheel with crank.



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WORSTED WEAVING

A woven cloth is created by interlacing one set of yarns with another at right angles. The length is known as the warp and takes the strain of pulling and friction, the weft is woven across it. Patterns and effects can be made to the appearance of the cloth by variations to either. The warp yarns are threaded through heddles and lifted in sequence as the weft passes under them wound onto a bobbin placed inside a shuttle. By changing the groups of warp threads raised, different weaves are created. The main ones being tabby, twill, hopsack, satin, and damask. The width depends on how far the weaver can 'throw' the weft yarn and keep the sides even (selvedges) and how fine the warp yarn is. Before industrialisation, a woollen cloth was 22 inches wide by 27 yards long. After industrialization it increased to 36 inches or more wide, with much longer lengths.

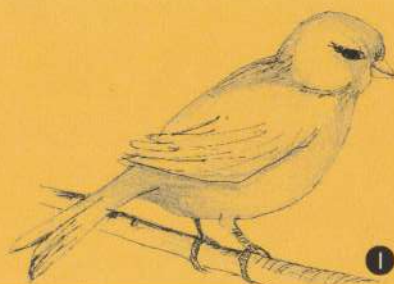
A worsted woollen cloth had been developed in Norwich by the 14th century. Quality control was introduced in 1328 when Alnage Duty was imposed. Elected wardens checked the cloth to ensure it was up to standard and the correct length. It was sealed with two lead discs which recorded the year and mark of the weaver and makers were also identified by coloured lines in the selvedges. Norwich seals have been found in the Thames mud.

In 1565 decline in the Norwich worsted trade led to the City Elders inviting 30 households of religious refugees from the Netherlands to come to Norwich. They comprised of 6 French-speaking Walloons and 24 Dutch or Flemish, who specialised in lighter weight cloth and brought the drawloom with them. They also brought canaries which were kept in cages in the

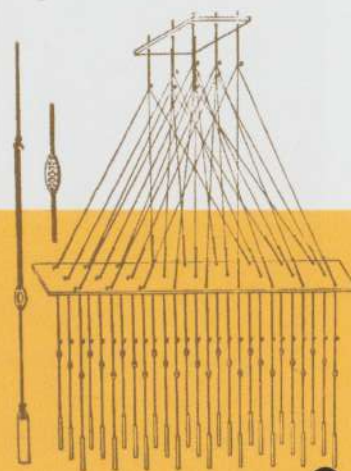
workroom. By 1579 there were 6,000 'Strangers' in the city making them a third of the population. The Dutch wove short staple cloth which was dyed later (in the grey), the Walloons wove patterned long staple cloth with pre-dyed warp and weft. Laws and rules were imposed to separate the established local cloth from the New Draperies. The local cloth was known as Figured Russells, and statutes (1578) were made to distinguish one from the other by the cloth width. The combination of English wool and Flemish technique was thought to be ideal for making luxury cloth.

Figured fabrics were woven on a drawloom which has an elaborate 'figure harness' operated by treadles. The pattern is governed by the sequence of lifting the threads, which was the job of a drawboy who sat on the top of the loom. The Jacquard loom, which did away with a drawboy, had punched cards to automatically select and lift the cords carrying the warp, but was not used in Norwich until 1830 as it needed greater height than was available in the cottages and would mean the drawboy, who was usually one of the family, being out of a job.

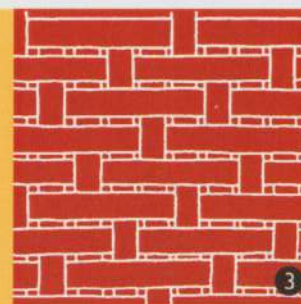
The worsteds and worsted mixtures became known as Norwich Stuffs. Many were hot-pressed to give the cloth a high sheen and bring out the colour. They were never fulled, allowing the weave to remain visible and were popular for ladies fashions, mens waistcoats, and furnishings and included camblets, callimancoes, satins and damasks. The cut of fashionable clothes was adapted to accommodate the fabric widths, especially the narrow 18 inch callimancoes which were ideal for making one side of a mans' waistcoat.



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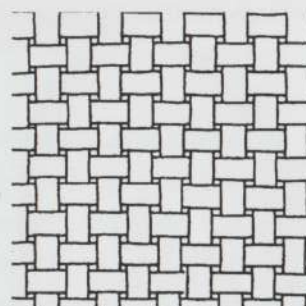


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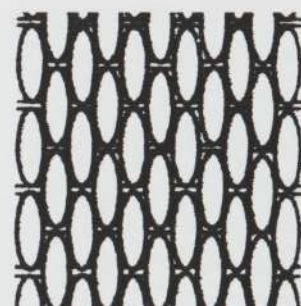


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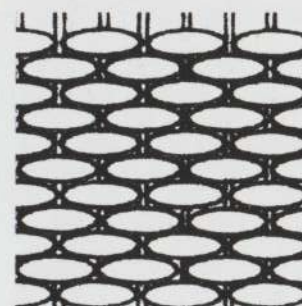
- 1 Norwich Canary
- 2 Heddle and eye left, comber board and bottom of pulley box.
- 3 Satin weave
- 4 Twill
- 5 Plain or Tabby
- 6 Warp faced
- 7 Weft faced
- 8 Method of attachment of heddles to lams and pedals.
- 9 Weaver at home with Jacquard loom. Wife filling bobbins, bird cage by window.



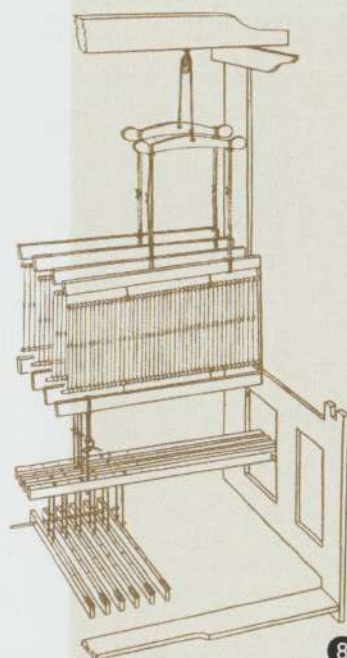
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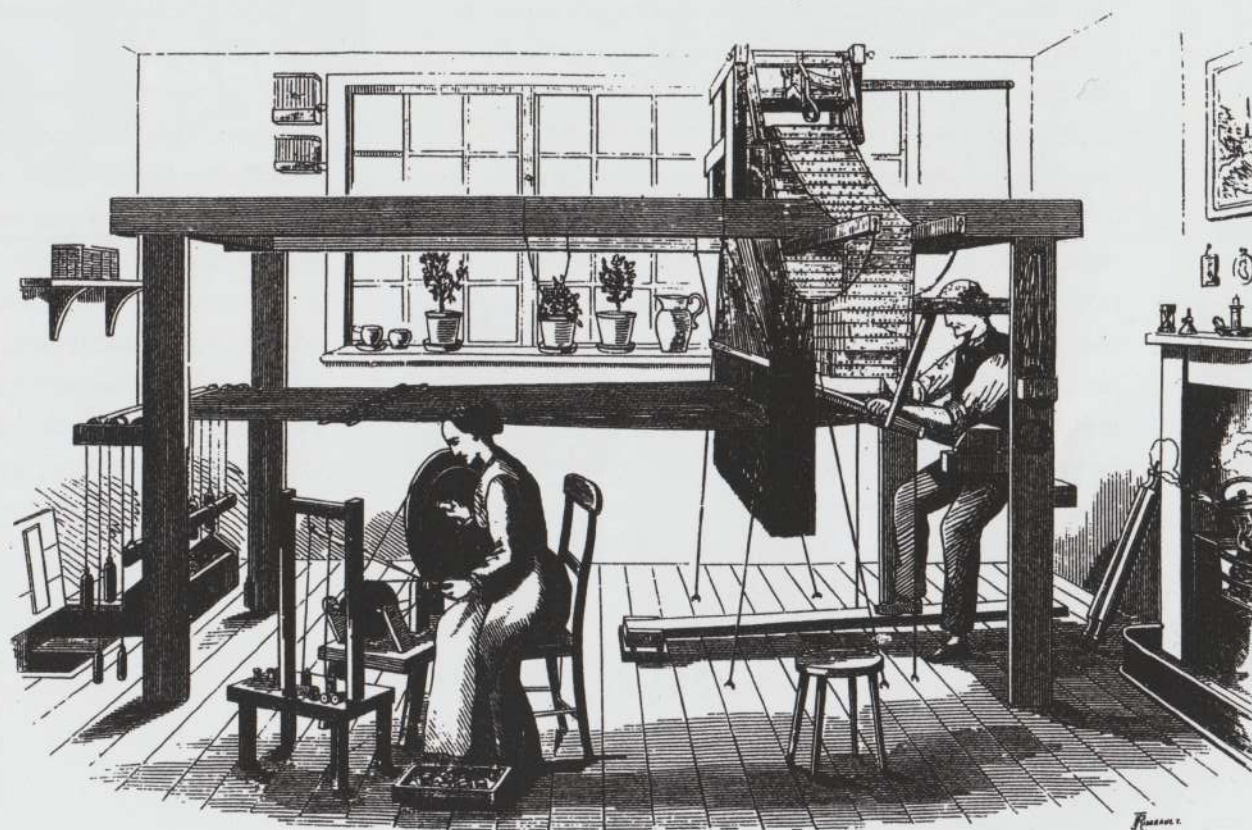
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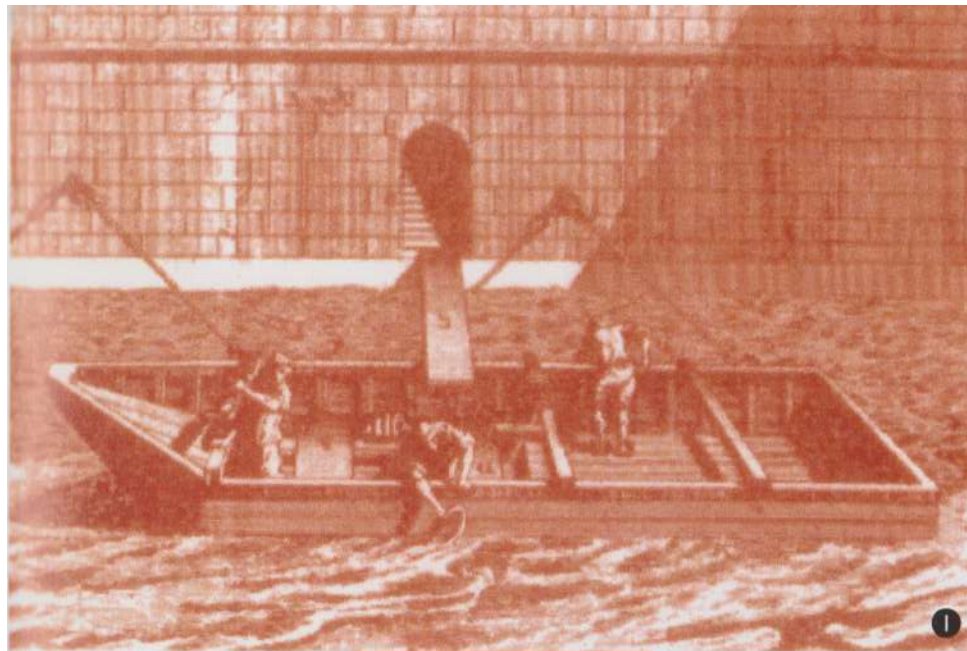
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The expertise of Norwich dyers was recognised internationally. Until synthetic dyes were discovered in the 19th century, selected plants and animals were used to produce a liquid that would colour fibres permanently. Dye penetrates right through to the molecules of a fibre without affecting the handle of the cloth. Colouring pigments used in printing lie on the surface and often stiffen fabric. The chemistry of the fibres is as important as that of the dyestuff, some taking dye more easily than others, wool being a protein is one of the best. Although many plants release dye, only 30-40 were commonly used. To enable dye to bond with the fibre it needs preparing with a metal salt known as a mordant. The most commonly used is alum. Chrome, iron, copper and tin, change the original dye colour. Tin and chrome brighten it, iron and tannin 'sadden' or darken it.

The skill of the dyer is in coaxing the plant to release its colour and produce a dye that is colour-fast and will not fade. Scouring the yarn or cloth first, allows the dye to penetrate the fibres evenly and a long careful preparation is required to ensure maximum take-up without damage. To repeat a colour the process would need to be recorded carefully and kept as consistent as possible. Natural dyes could easily be contaminated at every step – growing, transport, containers, storage, and pollution of water supplies. Recipes for dyes and methods were deliberately kept secret and only passed on to members of the family. Dyers would not have had easy access to the limited chemical knowledge of the time and judged many of the processes by literally

putting their hand into the scalding water or tasting it. Animalisation, adding dead cats, ox blood, oil, bran, and chalk, was probably a way to alter the acidity of water and soften fibres which had become harsh and brittle after treatment with the chemicals used in preparing fabrics. Stale urine was added to the dyebath as a mild alkali for its ammonia content. All this was washed in the river which was said to 'run red' at times. It is little wonder that the industry was confined to one area of the city.

Madder is one of the great historical dyes stuffs, and ranked second after indigo. It produces a brownish red except when mordanted with tin when it becomes scarlet. It was grown locally and there was a medieval madder market in Norwich trading in the dye root. Madder liked the local hard water which contributed to the strength of the colour. Scarlet dyeing was a specialist skill and produced in separate workshops as red was prone to fading and running. It was a status colour and those who dyed it would command the highest prices. Cultivation of madder in England came to an end by 1650 as the higher quality of imported root from Zeeland and Turkey was preferred. In 1856 William Perkins discovered how to produce mauve from aniline, a by-product of coal tar. Alizarin, the dye material in cochineal and madder, was made chemically in the late 19th c and reds became easier to dye although still inclined to run and fade. Not only did it cut costs by shortening the process, but the chemicals were universally available and no longer secret.



- 1 Rinsing dyed fabric in the river. Macquer 1759
- 2 Dyeing Reel and crank for turning wool evenly
- 3 Madder plant *Rubia Domestica*.
- 4 Washing wool in a tub of 3 parts water to 1 part urine.



TRADE & MARKETS

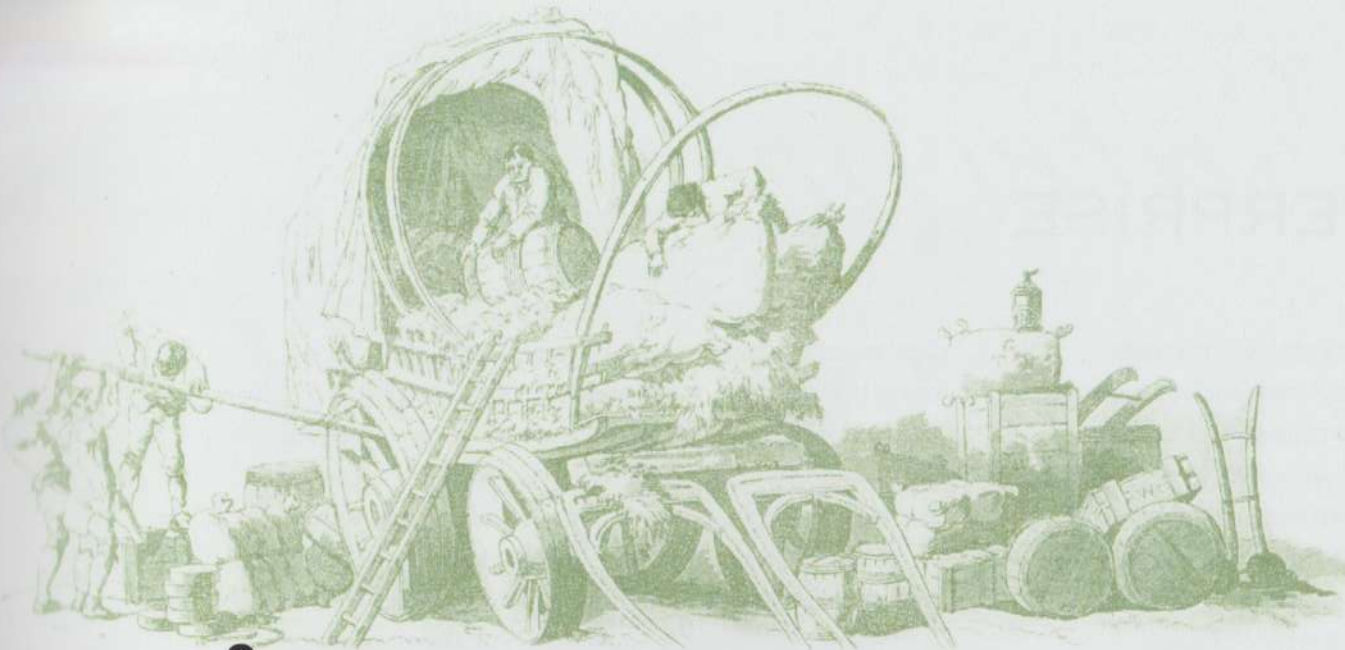
By 1697 Norwich was a single industry town. Weaving was a focus of community involvement and trade. Master weavers, journeymen, apprentices, woolcombers, yarn merchants, twisterers, dyers and finishers, lived close to each other in the St Giles area north of the city beside the river Wensum. Spinning and woolcombing were done in the surrounding country. A strict progression of apprenticeship was in place leading to becoming a freeman after seven years. Most businesses were small self-financing family units with only two or three looms. Their workshops can still be identified by horizontal Dormer windows on the third floor of houses in Colegate. The whole system rested on a complex network of credit which could easily break down and lead to insolvency with the woolcomber or yarn merchant at its centre.

Mayors and Sheriffs of the city were elected from freemen. As the weaving industry was pre-eminent it follows that most of the city elders and officials were master weavers or cloth merchants. Visitors remarked on the elegance of Norwich. Large premiums were paid by fathers in other parts of the country for their sons to be apprenticed to Norwich weaving masters. Some of the merchants who were amongst the most wealthy and influential in the country, also had busy warehouses in London. In the mid 18th c their sons were sent

abroad to sell 'stuffs' and secure orders, and they returned with a broader outlook and appreciation of the arts. Business letters from Phillip Stannard's partner John Taxter in the 1760s to customers in Europe, are written in French, German, Spanish and possibly Dutch.

In 1771 it was estimated Norwich had 12,000 looms and trade worth £1,200,000 a year. Eye witnesses writing at the time remark that it was a common sight to see a weaver carrying a beam of woven fabric over his shoulder back to the warehouse where he would pick up yarn and designs for his next assignment. A master weaver controlled every stage of manufacture from choosing the colour and quality of the yarn to setting the pattern of flowered damasks or striped callimancoes on the looms. They were beautifully designed and very colourful. Clients spending large sums of money on luxury goods demanded perfection.

The greatest profits lay in direct dealing with London. Packs sent by carrier via Thetford, Newmarket, and Ware, took 4 days to arrive at Bishopsgate warehouses in London. Cloths were passed from there to Mercers in other parts of the country or exported abroad. Norwich Stuffs were also on sale at the great fairs in England and the continent.



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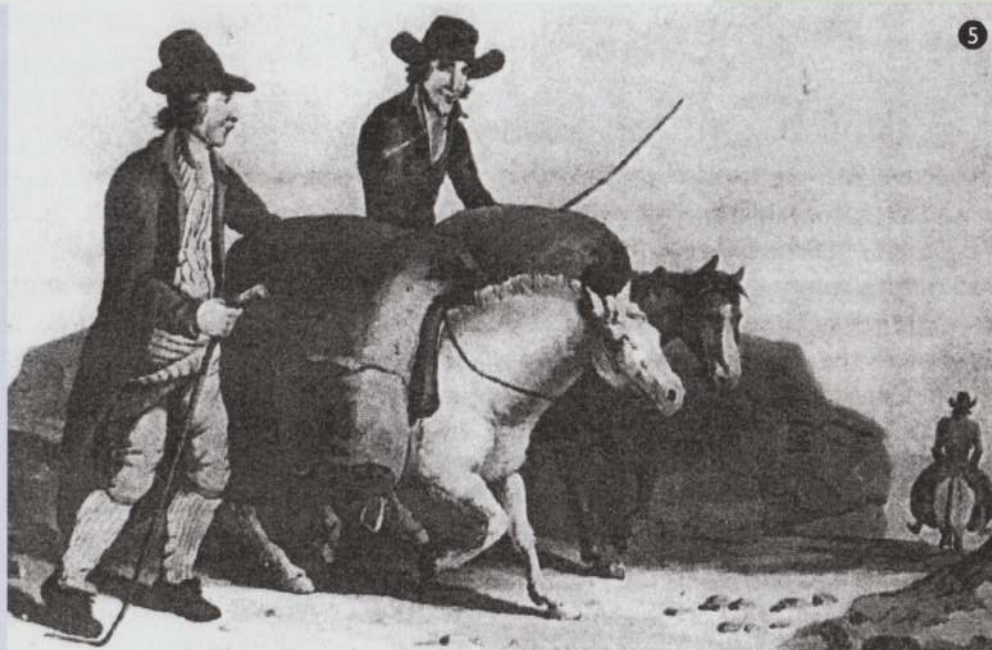
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- 1 Breakdown at the Turnpike.
- 2 Textile seal 'Worsted Reformed'. Used on lengths of finished cloth.
- 3 Norwich City textile seal.
- 4 Pack marks for bales.
- 5 Cloth traders with pack horses.



5

FREE ENTERPRISE

Indirect marketing through the London warehouses became difficult after 1760 as they were choked with stock due to a downturn in trade caused by wars with France and America and political upheavals. In a courageous response, the Norwich manufacturers decided to by-pass the London clearing houses and finance export themselves through the port of Great Yarmouth. The black-sailed trading wherries were already an established way to transport packs of 'stuff' by the river and broads to Yarmouth and from there by Brigantine or sailing ship to Europe and beyond. Phillip Stannard writing to a customer in 1755 describes how bales were labelled and packed for shipment. They were marked with a logo using the customer's initials, numbered and packed in double canvas, paper, and straw with a pair of boards for added protection. Some weighed up to ten cwt. and contained 80 pieces of cloth 27 yards long. A big problem was mildew and the packing suggests it was designed to let the bale 'breathe'. Mildew was also said to be the reason for the wherry sails being treated with fish oil which attracted rats. Black coal tar was added to prevent the rats eating them. Opening carefully packed bales would have spoilt the contents. Great Yarmouth had no covered quays and customs and excise were persuaded to accept authentication of the contents of bales by affidavit from the hot-pressers who had packed them in Norwich. When a ship was ready to sail, up to twenty traders worked for three days and nights to prepare the bales for transport. The wherries were able to transfer them straight onto the waiting ship at sea.

There were problems with large amounts of capital being tied up while waiting for payment. The costs involved in owning ships that could be lost to pirates or shipwrecked, meant that ships were hired or co-owned and cargoes went uninsured. There were many bankruptcies, Phillip Stannard being one of these. As there were few records kept at the time, the inventories for probate provide an insight into how their businesses were run.

Another record of the diversity of fabrics comes from samples of dyed cloth that were in the pattern books taken abroad by representatives of the firm. These were produced in different languages and selected to suit the taste of the country. Bridewell Museum has a good collection of them but there are no examples of lengths or garments. Stuffs were exported in large quantities to Holland, Germany, Spain, Italy, Norway and Russia. To avoid trade tariffs and embargoes from 1743-1763, exports to Mexico, Peru, and Brazil, were via Rotterdam, and the Iberian Peninsula. Lists of shipments were recorded by Phillip Stannard in 1777 under 'Adventure Accounts'.

Trade and exchange between Norwich, India and China through the East India company enabled the textile industry to continue after the devastation to exports caused by the American Civil War.

Common Brocaded Salt 18 In. 30 yds 66/ 17 7/8
Double points 20 In. at 76 1/4 82 1/2 19 In. 30 yds
From N° 132 to N° 135

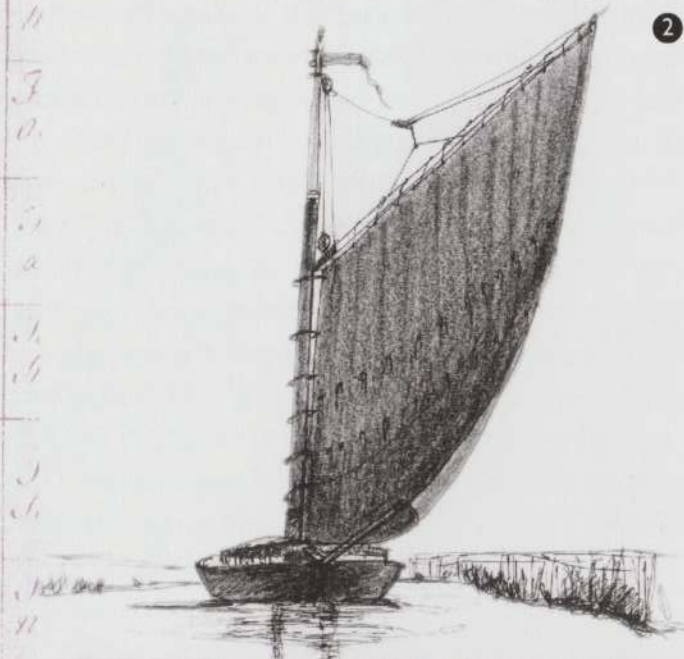
13. *Fine Rich Brocaded Salt 10 In. 30 yds 81/ 81 1/2*

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15. *5*
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16. *1/4*
1/4

17. *3*
1/4



18. *N° 200 to N° 203. 24 In. 38 yds. at 60/ 1/2*
N° 204 to N° 207. 24 In. 38 yds. at 60/ 1/2

Extra Superfine Double Gambetta Common Salt
N° 208 to N° 210. 30 In. 38 yds. at 128/ 1/2

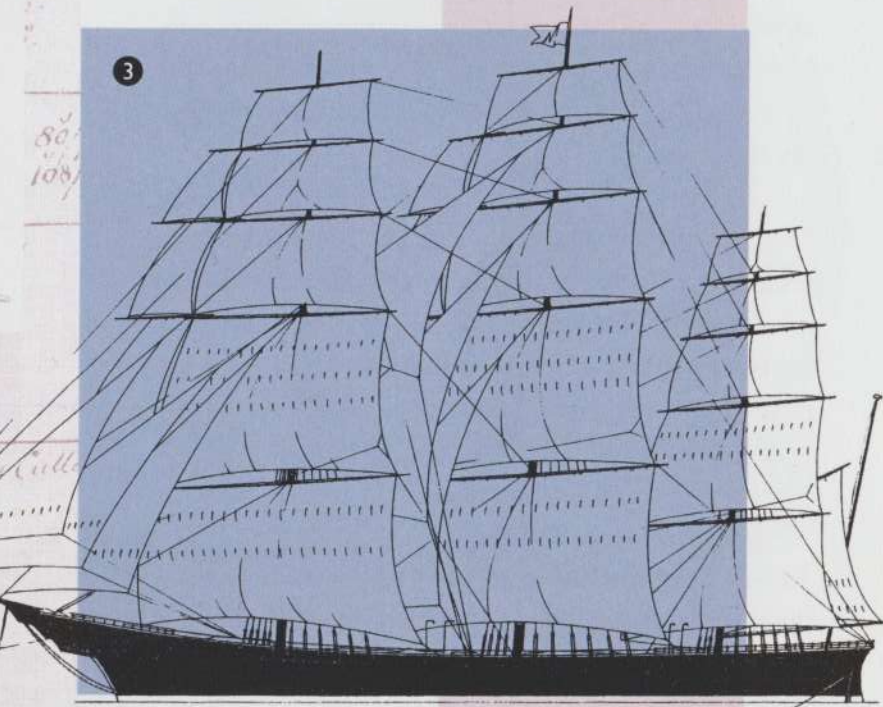
19. *N° 214 to N° 216. 30 In. 38 yds. at 110/ 1/2*
N° 220 to N° 222. 22 In. 40 yds. at 72/ 1/2
N° 226 to N° 228. 22 In. 38 yds. at 58/ 1/2

1 List of orders sent to customers 1763.

2 Trading wherry on the broads.

3 Clipper 3 masted vessel c1780.

4 Detail of Brigantine training ship mast.



HIGH POINT & DECLINE

Norwich specialism in weaving luxury fabrics reached its height from 1780 – 1860 with the fashion for silk and worsted shawls inspired by ones from Kashmir after competition from Lancashire had driven Norwich to concentrate on the luxury end of the market. Preparation, threading and finishing required a team of highly skilled craftsmen. In about 1830, a Norwich shawl-maker Richard Stark, discovered the process of dyeing a woven silk and wool union-cloth in one dye bath to the same shade which became known as 'Norwich Red' and the exact method still remains unrepeatable.

The importance and manufacture of Norwich cloth ended in the late 19th century, partly due to the reluctance of weavers to change but also to the fashion for lightweight calico and the shift from crinoline to the bustle. Camblets were still exported to China until the end of the East India Company in 1834 and callimancoes to Russia for sashes.

As firms became bankrupt the skilled weavers and dyers moved elsewhere. High class shawls did not lend themselves to mechanical looms and once the secret of the 'Turkey Red' dyeing method had been found, the industry moved to Manchester and Paisley and the luxury fabrics priced themselves out of competition. The large northern mills could afford to promote their goods nationally, bulk buy and save on labour costs. Norwich missed out on the industrial revolution as no

manufacturer was prepared to lose capital by investing in power machinery. Weavers were used to controlling the city and making their own rules, and the reduction of wages during the recession in 1826 made them militant. If power looms had been set up, they may well have been smashed by out of work weavers. St. James Mill was finally built in 1838 with six floors for hire but it was too late. East Anglia lacked fast running water that would have provided water power and was a long way from sources of coal and iron. By 1818 the bulk of yarn used in Norwich was power spun in Bradford. The focus of trade gradually changed to shoe manufacture, brewing, iron works and mustard and goods went to Yarmouth by steam train instead of the wherry.

Traces of the weaving industry can still be found in Norwich, like the Maddermarket theatre. The horizontal weaver's windows in the third storey of houses in the Colegate area are reminders of looms being worked in maximum light next to merchant's houses built of flint in 1530 and elegant Georgian buildings. Even restored wherries come under the bridges in summer for tourists to visit. The city's football colours are green and yellow and they are known as 'the canaries'. But if you are really interested make appointments with the Bridewell Museum to see its Jacquard loom and pattern books and the Textile Resource Centre at Carrow House with its excellent library, array of shawls, and extensive collection of costume and textiles.



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- 1 Ladies dress c 1760
(Carrow House)
- 2 Ladies dress c 1790-
1800
- 3 Dormer windows on
3rd floor; 15th c
Merchants House in
Colegate Norwich
- 4 Weaver carrying
finished cloth c 1790



3

TIME LINE

1300	Magna Carta	1721	Calico Act.
1310-1327	Edward II	1727	George II
1530	Camblets woven in Norfolk.	1743-1763	Golden age of Norwich Textiles. Self financed by the merchants and shipped directly through Great Yarmouth.
1559-1604	Reign of Elizabeth 1st	1756-1763	Seven Years war.
1565	Norwich city elders invited Dutch and Walloon weavers to work in Norwich. Known as 'Strangers'. Start of 300 year industry.	1760	Peasant market in Germany for Norwich Stuffs. Conquest of Canada.
1590	Callimancoes woven in Norwich.	1761	George III
1650	Commonwealth	1764	Hargreaves invents the Spinning Jenny.
1660	Charles II	1751-1770	John Stannard company weaving in Norwich and exporting to Europe and Russia.
1664	Great Plague began.	1768	Arkwrights Spinning machine. Cook embarked on voyage to South Pacific.
1666	Great Fire of London. Halley's comet.	1773	Boston Tea Party. Cooks second voyage.
1685	James II	1775-1783	American War of Independence. Trade export damaged. Down £400,000 in thirty years.
1689	William III and Mary	1777	Americans defeat British at Saratoga.
1697	Norwich a single industry town. Textile weaving and dyeing.		
1714	George I Norwich population 30,000. Wealth based on wool trade.		

1778	France allied with Americans. Difficult export trade.	1823	Move towards free trade. Waterproof fabric invented by Macintosh.
1780	First shawls made in Norwich.	1830	Jacquard Loom in Norwich. End of Drawboy.
1783	Hot-presser in trade list.	1833	Factory act limited children's working hours. Slavery abolished in British Empire.
1784	Cartwright power loom.		
1794	Tuthrie Pattern Book.	1834	End of East India Company.
1793-1803	Norwich exports relied heavily on East India Company to India and China.	1836	Power Spinning Mills in Norwich. Norwich Yarn Co.
1802	Fillover shawls made in Norwich.	1837-1901	Accession of Victoria.
1807	Hand-spinning ended. Slave trade abolished.	1851	Turban cloth. Great Exhibition Crystal Palace.
1813	End of East India Company monopoly. Far East markets for camblets.	1856	William Perkin invents synthetic dyes.
1814	Anglo American War ended. Steam power on ships.	1860	Fashion for the bustle. End of the shawl era.
1815	Napoleon defeated. Peace with France.	1868	Artificial alizarin red made by Graebe and Lieberman. Taken up by painters and dyers.
1819	Naphthalene dye from coal tar. First Factory Act.	1869	Only nine firms in Norwich making fancy fabrics.
1822	Camblets and worsted damasks woven more cheaply in Halifax.		

GLOSSARY

Alnage Duty

Imposed from 1328 on worsted cloths. Fabric sealed to guarantee quality and checked by wardens. Fines if it was not up to standard and a larger fine imposed on the warden who passed it.

Brigantine

Small vessel c1525. Two-masted sailing ship, square rigged on the foremast and fore-and-aft on the mainmast.

Callimancoes

Heavily glazed worsted cloth of satin weave often striped in two or more colours and finished with a glaze by hot pressing. Yarn pre-dyed. Used by Russians for sashes and for peasant costume in Europe and Sweden.

Callander

Mangle with heated rollers for finishing woollen cloth.

Camblet

Worsted tabby weave fabric made originally of combed wool but in about 1650 was replaced with angora goat wool and camel hair. Sometimes a mixture of wool and camel hair. Usually plain but also patterned in stripes and checks. Hot pressed and embossed.

Crimp

Amount of wave found in a lock of fleece.

Coal Tar

Used as a preservative on wood or sails. Made from coal residue in gas production.

Coal Tar dyes

Distillates of coal tar – aniline naphthalene – produced first chemical dyes. W H Perkin discovered the first synthetic dye in 1856 making a mauve colour.

Damask

Richly decorated fabric in silk or wool. Woven on the Jacquard loom producing an area of satin weave background with contrasting matt areas. Unlike a brocade it is reversible. Used for curtains and upholstery.

Drawloom

A handloom for weaving figured textiles equipped with a special type of 'figure' harness that controls warp ends.

Long weft threads allows a higher lift.

Ell

Measure of length and width used for woven cloth. An English ell was about 27 inches.

Fellmonger

Man who removes wool from dead sheep.

Figured cloth

Damask cloth with patterns created on a drawloom or Jacquard.

Freeman

Only freemen could trade in the city, train apprentices or take part in city government. Granted to legitimate sons of freemen or after working for seven years as an apprentice to a freeman. Many freemen from the weaving industry became Mayors and Sheriffs of Norwich.

Fulling

(Milling) Thickening of woollen cloth using Fullers Earth or soap to obtain a firm, warm fabric. Done routinely in the middle ages to give fabric a drape and prevent later shrinking.

Fuller's Earth

Clay used to clean cloth.

Heddle

The cords or wires fixed to the harness or shaft on a loom which the warp passes through. Also known as leashes.

Hot pressing

Applying a glazed finish by compressing the fabric between heated iron plates.

Journeyman

A man who has finished his apprenticeship but is not yet a master.

Jute

A bast or stem fibre which grows 5-16 feet in East Pakistan. Used for hessian and packing.

Madder

Root of *Rubia Tinctorum*. Widely used throughout Europe and the Middle East to make a natural dye producing a reddish brown or scarlet red when dyed with the

'Turkey Red' technique. Used to produce the highly prized 'Norwich Red'.

Mordant

Minerals used mainly on woollen cloth as a fixative for natural dyes. The most common are, alum, chrome, iron, tannin, copper and tin. Produce different shades of colour from one dyebath.

New Draperies

Woollen fabrics manufactured in Norfolk, Suffolk, Kent, and Essex. Most diverse and inventive made in Norwich.

Norwich Red

Trade name for Geranium scarlet dye. Scarlet dyeing was a separate branch of the trade. Colour produced by using a tin mordant and unknown processes.

Norwich Stuffs

Generic term for 17th century light-weight worsted or worsted and silk fabrics made in Norwich. Never fulled so the weave remained visible. Term almost interchangeable with New Draperies. Used for clothing and furnishings. Brought prosperity to Norwich in the late 17th century and extensively exported to the Far East, Europe, Scandinavia, Russia and Americas.

Novelle Draperies

Name for New Draperies on the continent woven from wool.

Pattern Book

Book of samples of manufacturers dyed fabrics. Recording date, weaver, dyer, bale logo, and strip of fabric. Produced in different languages for trade abroad.

Rock spun

Distaff spinning. Early spinners used a rock as a weight.

Rolag

Roll of carded wool ready for spinning trapping maximum air for lightness.

Satin

Fabric woven over 5, 7 or 8 stitching points to give a warp faced shiny fabric.

Seals

Two disc-seals put onto fabrics by a warden to show cloth is up to standard and who made it. G indicated a greyed cloth (undyed). A B C etc. indicates the year. Callenders have to certify the cloth is perfectly dyed.

Scoured

Cleaning and washing of fibres before dyeing or weaving in one part tepid water and three parts urine.

Spinning

Turning fibres into a continuous yarn. Oldest method was on a drop spindle. Spinning wheel was introduced in the late middle ages. Distaff spinning still used until the 18th century and considered superior to wool spun on a spinning wheel.

Twister

Man who plies silk or wool thread for warp.

Vitriol

Sulphuric acids used as mordants on wool. Does little damage to the fibres and hastens exhaustion of the dye. Blue vitriol – copper, Green vitriol – iron.

Wherry

Black sailed shallow draft trading boat which carried goods on the broads between Norwich and Great Yarmouth from 1760 until 1929. Peculiar to Norfolk and Suffolk. Crewed by two men and powered by wind or punt. The mast is at the back of the vessel and is able to be lowered quickly to go under low bridges. Wooden hatches covered the cargo. Was able to deliver cargo offshore to vessels too large to reach the quay-side. With an average length of 60-70 feet a Wherry could carry up to 80 tons.

Worsted

Yarn spun from long-staple combed wool. Also a term used for the woven fabric.

Woollen

Yarn spun from short staple carded wool.

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ACKNOWLEDGEMENTS

With thanks to:

Victoria Mitchell course leader MA Textile Culture
Norwich School of Art & Design for her support and enthusiasm.

Norfolk Museums Service:

Fiona Strodger, Cathy Terry, Linda Wix, and librarians at the Costume and Textile Centre Carrow House,
301 King Street Norwich NR1 2TN
(Visiting by appointment 01603 223870 Tues & Thurs)

John Renton curator of The Bridewell Museum of Local Industries and Rural Crafts, Bridewell Alley, St Andrew's Street, Norwich.

Pamela Clabburn, Helen Hoyte, Thelma Morris,
Members of the Costume and Textile Association
Carrow House.

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Text and drawings Jeanette Durrant.
Graphic design Lynda Durrant.

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