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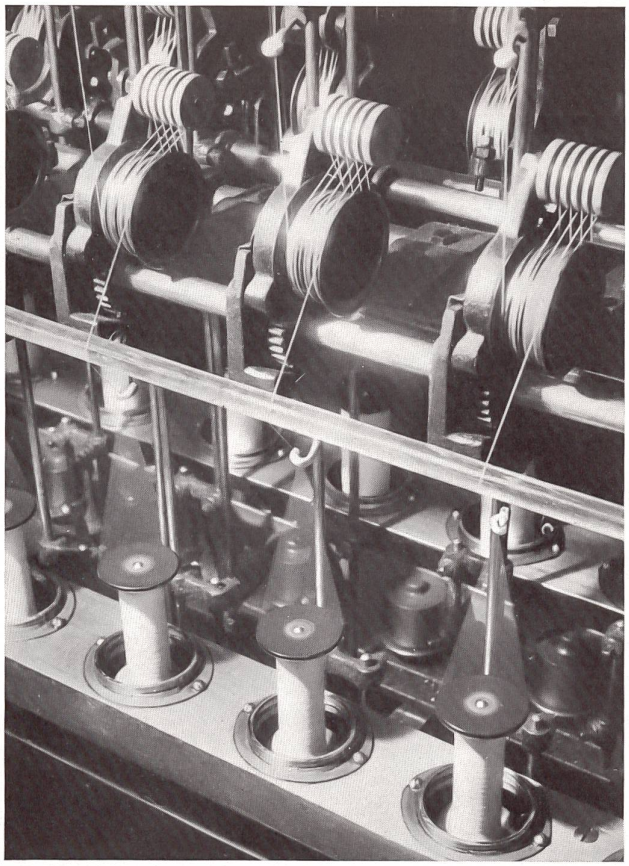
At the Spinning Wheel (after S. Freudenberger).
Société Industrielle pour la Schappe, Basle.
Schappe and tussore weft and warp yarns, sewing twists, écru and mass-dyed staple fibre yarns, mixed yarns, carded wool yarns, knitting yarns.

It all hangs by a thread !

All fabrics are made of yarn, a fact which is easily forgotten because although it is merely the twining and intertwining of yarns which compose a material, the structural composition passes unperceived in the finished product. As the old saw wisely says : « One can't see the trees for the forest ! » And then the fabric itself has its own intrinsic value : it attracts by its colour, design, structure ; it is lustrous, changing in hue, seductive — and yet... it is but an assembly of yarns ! In the final count, the value of the most beautiful of fabrics really resides essentially in the value of the yarns from which it is made : good yarn or twist makes good cloth, just as good thread makes a good seam. And that is why, today, we would speak of threads, yarns and twists — thread which, to the Ancients, symbolized life itself, cut by the pitiless Atropos. Long before the spinners of Eastern lands, of the Mediterranean and Northern civilizations first twirled their swift shuttles, the sheer, pale chrysalis of the silkmoth — like its sister Arachne, the spider, — spun its silken shroud to veil its metamorphosis. Silk has the priority in the hierarchy of textile fibres, even though certain others of vegetable origin were used for this purpose, long before that clever Empress of the Celestial Empire conceived the idea of unwinding the cocoons. So, in our present brief survey of textile fibres, we too give precedence to *silk*.

Switzerland imports her supplies either in the form of raw silk or silk waste or schappe, described in a following paragraph. The former arrives in hanks of raw, continuous filament, itself formed by several (3 to 8) strands of filaments secreted by the silkmoth cocoon unwound by the skilful hands of Man. One cocoon contains about 1000 feet of filament, only 120 to 200 of which can be unwound in one piece.

After certain cleansing processes, several strands of the raw silk are wound on a single reel (from 2 or 3 to 10 or 12 filaments per reel, according to the thickness required) and are then twisted together or singly. The degree



Partial view of a modern ring twisting loom.

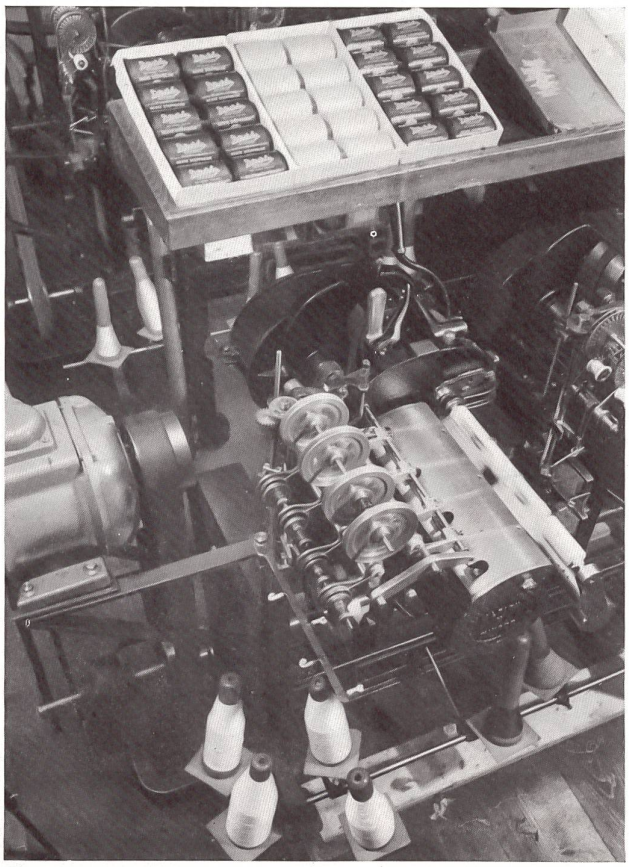
R. Zinggeler, Silk twisters, Zurich.

Silk twists of all types : special twists for weaving, haberdashery and stocking manufacture, bolting cloth and cable manufacture.

Hank dyeing machine for silk twists.

Zwicky & Co., Wallisellen.

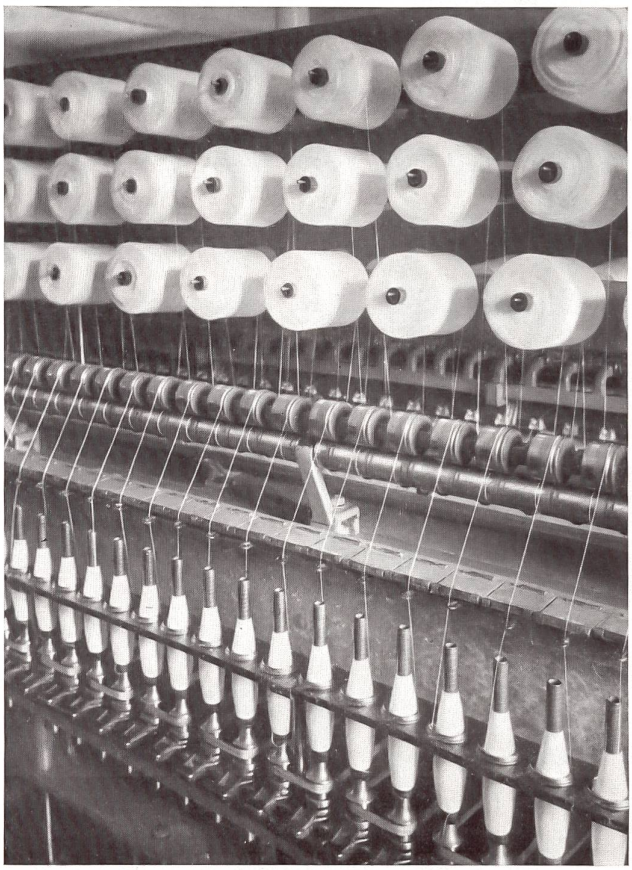
Sewing and embroidery silks, écru and dyed silk twists of all grades for weaving, haberdashery and stocking manufacture. Hank dyeing, stocking dyeing and finishing.



High capacity, modern machine for cross-reeling.

J. Dürsteler & Co. S. A., Wetzikon.

Twisting, silk dyeing and sewing silk manufacture. « Idewe » Hose. Stocking dyeing and finishing.



Partial view of ring twisting loom.

Boppart & Co., Goldach.

Cotton, rayon, wool and staple fibre twisting. Cotton sewing twists, poplin twists, cotton thread for haberdashery manufacture.

General view of a ring twisting frame.

Bäumlin, Ernst & Co., St-Gall.

Manufacture and sale of twists of all types and grades, for embroidery, haberdashery manufacture, weaving, insulating sheats ; industrial sewing silks, etc.

of torsion varies according to the use for which the finished product is intended. High degrees of torsion are obtained by twisting several strands together, either all in the same direction or in contrary directions. The lowest degree of torsion used for silk yarns is the « weft », comprising about 100 twists per metre. Then, comes the « warp » (organsine), the « cordonnet » (sewing-silk), « doubled weft » or « hand-knitting » and, lastly, « crepe », which has a torsion of as much as 3000 per metre.

Sewing-silk (made from raw silk or from schappe) is obtainable in various grades : for machine or hand-sewing, for buttonholes. The colour cards presented by manufacturers of this product always cover an extremely extensive range to meet all the requirements of an exacting clientele. Here too, colours must be light, laundry and heat resistant. Sewing-silks are employed in all crafts and industries dealing in products for which very strong yet supple seams are needed : for instance, in the outfitting trades, footwear and glove making, trimmings, haute couture, and so on.

These silks are packaged in various ways for sale to the public and divers industries — in skeins and hanks, reeled on wooden, tubular, cardboard or paper bobbins. They are obtainable in an extensive range of sizes, thicknesses and colourings.

Less than one century ago, a very ancient dream of Man came true when it was discovered that continuous filaments could be produced artificially from cellulose, giving a strand similar the secretions of the silkworm. *Rayon* (like staple fibre, which is a later product from the same base) is rarely used for sewing purposes ; it is employed essentially for weaving and haberdashery. Rayon, like silk, is produced in the form of a continuous filament, that is to say, uninterrupted : in this respect, both silk and rayon differ from the other natural or synthetic, animal or vegetable, fibres — schappe, wool, cotton, staple fibre, etc. — all of which have to be spun. Spinning consists in the placing of the fibres parallel one to the other (by carding and combing) forming a sort of ribbon, called the sliver, which is then pressed and drawn tightly together, twisted and doubled, until all the fibres acquire enough cohesion to form a single strand.

In this category of non-continuous, spun filaments we would give first rank to *schappe* or *spun silk*. Schappe is the technical term used in the industry for silk waste from spinning mills and the raw silk filament obtained from cocoons useless for reeling. This material which, we must insist, is pure, natural silk, is first degummed, a cleansing process which eliminates the natural gums and impurities ; the waste is then « dressed », producing what are called « flags » which, in turn, are carded, spun and twisted like other textile fibres and by similar processes. Schappe is used for sewing and industrial silks. Mixture with other fibres produce contrasts and special effects for fancy weaves.

Cotton is a very ancient vegetable fibre used from time immemorial in the East, but it was only after the invention of mechanical spinning machines, and the resulting decrease in cost of production, that its use became really widespread and cotton plantations were scientifically exploited in the New and Old Worlds.

Excellent *sewing-thread* is obtained from cotton. It is used both for private and industrial purposes. Switzerland has many plants specialized in this production and all are equipped to supply the best quality grades.

Samples of products manufactured by
Textil Export Ltd., St-Gall.
High grade twists for needle craft.

Sewing thread : different types of reels.
E. Mettler-Muller Ltd., Rorschach.
Industrial cotton twist of all grades ; sewing thread of all types for industry and the retail trade ; all grades of finishing and reeling.

Heberlein & Co. A.-G., Wattwil.

« Helanca » (registered Trade Mark), rayon knitting yarn, crimped by special chemico-mechanical process to resemble wool. Mothproof, soft, warm, elastic, very luminous in colour. Most suitable for fashion wear, children's garments, etc.

Oscar Haag, Kusnacht (Zurich).

Smocked blouse worked with « Swisslastic » elastic sewing thread.

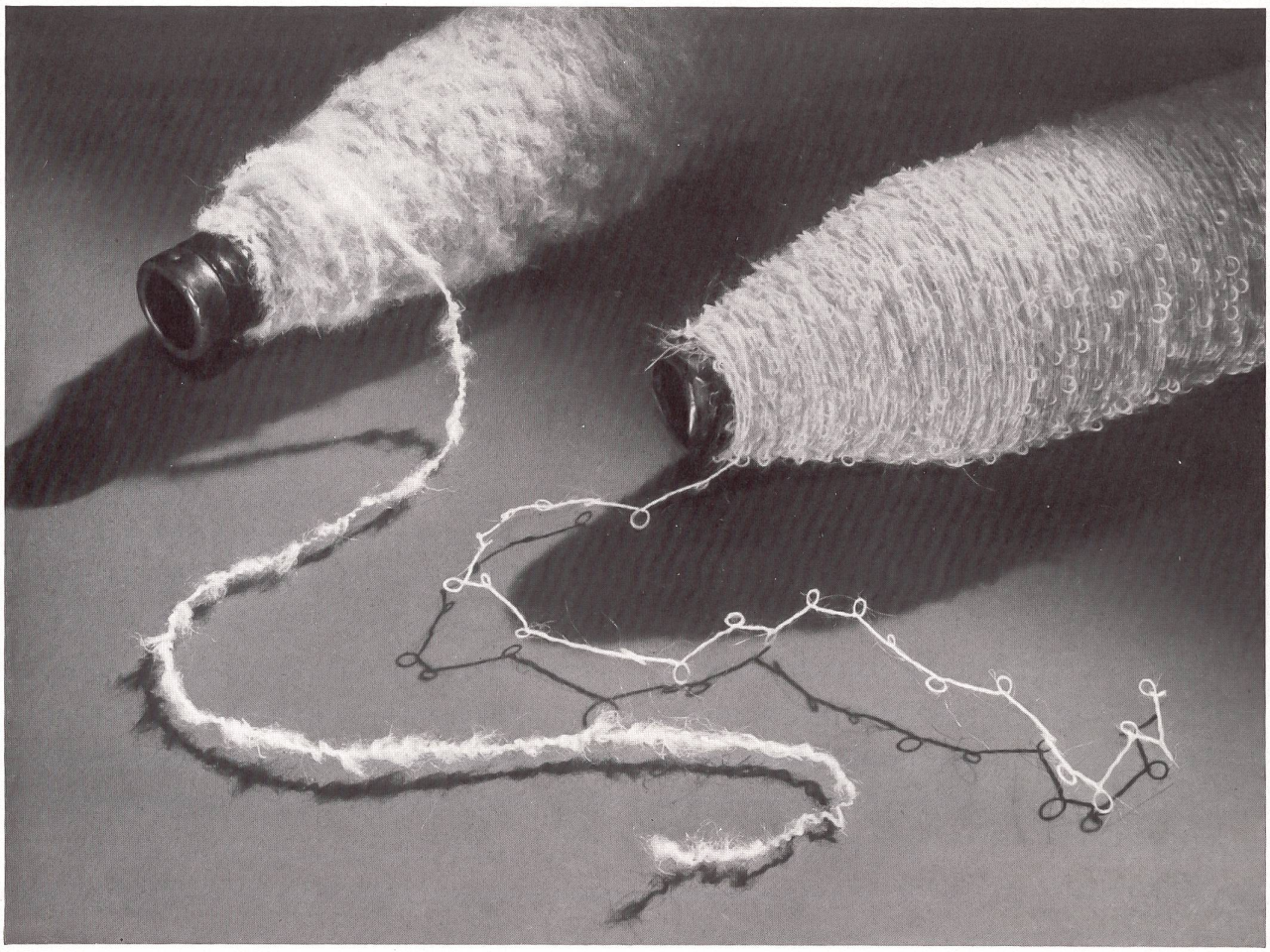
Cotton sewing-thread always has a single or double twist. Each filament is composed of at least two single strands twisted together, the direction of the second torsion being contrary to that of the first. Double-twist thread is naturally much more resistant than the single-twist type, because the fibres are more closely pressed together. Embroidery, darning and knitting yarns and thread are more closely twisted than plain sewing thread. In Switzerland, cotton twisting and doubling is operated exclusively on continuous ring frames.

Cotton thread is gassed, mercerized (silk finish) or glazed, dyed in laundry and even boiling-fast colours — the latter for embroidery on white ground. Different types and grades of sewing thread are obtainable for all purposes imaginable. Apart from the current white, black and coloured qualities, there are also special grades for hand and machine sewing, embroidery, crochet work, lace-making, and so on. These are sold in the most varied packaging, ranging from cones containing as much as 12,000 yards for industrial purposes, to reels of 50 meters and cardboard bobbins of 8 meters for hand embroidery, and to cheeses and wooden reels. All high-grade sewing thread is made from Egyptian Sakellaridis, first-quality long staple.

Many Swiss spinning mills supply cotton yarns for industry, for doublers, weavers, haberdashery manufacturers, embroiderers, etc. the goods being reeled on cones, cops and large bobbins.

Several leading firms in this country have specialized in the spinning and doubling of *wool yarns*, fine spun yarns and twists of all grades and types for industry and hand knitting. These yarns range from the maximum ply (for carpet-making) to fine carded qualities (Nos. 40 and 50 — namely, 40 to 50 kilometres per kilo of weight) for very fine weaves and haberdashery. Hand-knitting yarns are also an important item of production.

As mentioned above, *staple fibre* (spun rayon) is an artificial textile having the same origin as rayon. It is spun by the same process as wool or schappe (long staple) or cotton (short staple). It was first used industrially some twenty-five years ago and it is not therefore a mere « Ersatz » born of war needs, as is generally believed. As a substitute product during the war it did however serve many purposes, quite often contrary to its characteristics ; for this reason, it gained a rather bad name for itself, which it certainly does not deserve. Spun rayon or staple



Raised and bouclé mohair yarns, unfinished.

Emil Wild & Co., St-Gall.

Novelty and fancy twists, doubled twists, industrial sewing thread, embroidery cottons for hand and shuttle frames.

fibre has been spun in Switzerland for some twenty years. When judiciously employed, either alone or mixed with other fibres, its adds certain undeniable qualities to the general characteristics of any textile, and has many technical advantages when used in this way.

We cannot enumerate here all the different types of *composite mixture yarns*, prepared either before spinning or during the doubling and twisting process. Mixtures are operated usually to obtain the specific qualities of different materials and to cumulate them in the finished product. Among the numerous possible combinations we would mention a certain Swiss yarn sold commercially under a proprietary name for some fifteen years ; it is produced by mixing — before spinning — carded merino wool and long staple cotton, both worked in their natural lengths. This yarn is used for weaving and haberdashery, particularly for underwear for which the combined advantages of the two fibres are most suitable.

Mention must also be made of *fancy twists* used in weaving, haberdashery and some handwork ; with these, special effects are obtained in the finished product : slub, knotted, imitation hand weaves, etc.

These yarns are always produced on the same principle as described above, namely in a frame which twists several strands together, one of which at least, is fed into the machine at irregular intervals, or at greater speed. This irregularity is operated by mechanical devices and produces knots, loops and lumps. Fancy twists are produced from all types of raw materials, used either alone or mixed with others : silk, rayon, cotton, linen, wool, hair, spun rayon, etc. The seasonal sale of these articles is, of course, dependent on fashion trends and manufacturers are obliged constantly to adapt their production : one year, for example, soft furnishing fabric manufacturers will be their chief customers and, the next, it may be haberdashery or fashion fabric mills.

Similarly, one firm of Swiss yarn producers has succeeded, after many years of patient research, in perfecting a now patented process which allows the production — directly during the spinning operation and not by doubling

— of *structural yarns* with hand-spun effect. These yarns are perfect imitations of handmade products : the torsion varies according to the thickness of the raw material, so that the relative torsion remains constant, thus securing perfect homogeneity of the yarn. Furthermore, these effects, obtained by variation in thickness, are not reproduced at regular intervals, but come in free succession, so that there is no trace of machine work in the finished piece. These yarns are used without further preparation and, in the fabrics for which they are adopted, there is no repetition of effects or design.

While speaking of specially processed or proprietary yarns, mention must also be made of another Swiss *hand-knitting yarn*, made of rayon, each filament of which is crimped like wool by a patented chemico-physical process, the action being permanent. The yarn therefore looks like wool, but has the advantage of continuous filaments. As it is made of viscose, it is dyed in a most extensive range of colourings which, owing to its own inherent properties, it renders admirably. One great advantage of this yarn is that it does not irritate the most delicate skin and is very supple ; it is therefore ideal for all children's wear, for summer and even for winter garments, as it has excellent thermic properties.

To conclude this brief survey, we would finally mention *elastic thread*, very popular for smocking, frilling, flouncing and trimming in fashion wear, ladies and children's clothes and undergarments. This type of thread is made of natural rubber encased in a silk, cotton or nylon sheath. Several grades of elastic thread are on the market : for machine and hand-sewing, knitting, etc. These products are heat, perspiration, laundry, ironing and chloride resistant and obtainable in all fashionable shades. There is a vast field of application for these elastic threads, both in industry and the household.

R. Ch.

Structural yarn of variable thickness and constant relative torsion, with specimen weave.
Braschler & Co., Zurich.
Imitation hand-spun structural yarns : « Linarti », « Shantarti » and « Honarti »
for linen, shantung and honan weave effects.