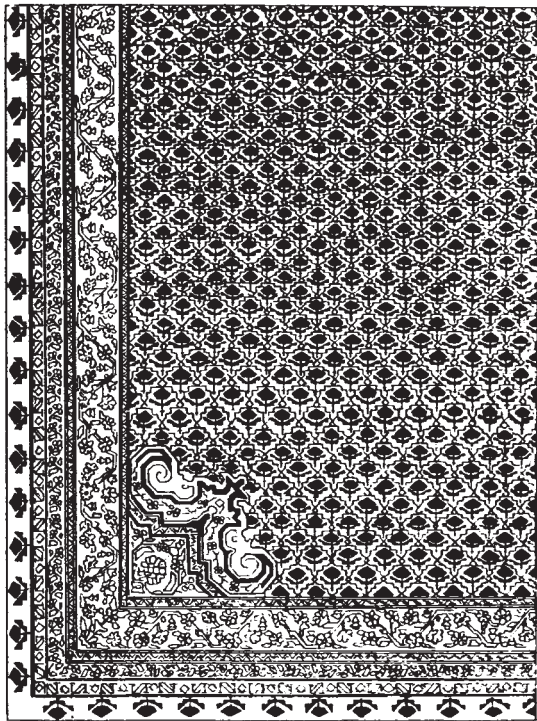


Design for an Ornamental Rug.

The illustration shows one of corner portion— as well as the body part — of the Rug. Shaded-Outlined-Dark (shown in black) — but effects shown in



our illustration can be used any good color combination. The face of the fabric may be brought in plush effect.

The Manufacture of Silk From Fibre to Fabric.

"SINGLES" is the name for all raw silk composed of a number of silk filaments twisted together during the reeling of the silk. Since each cocoon supplies a double thread, consequently if four are reeled together the singles actually contain eight filaments, if five cocoons are reeled together, ten filaments, etc. The silk in this stage, as already previously referred to, has a coating of gum (the reason why the yarn is termed or known as "in the gum") which adds considerable to its strength as well as elasticity, for which reason in connection with piece-dyed goods like plain and figured pongees, satins and similar fabrics they are as a rule woven with the silk in the gum state, the fabrics being un-gummed or the gum boiled off afterwards. This, however, is not possible in connection with fancy colored fabrics, although in the latter instance in many cases such yarns are dyed without boiling off, a feature which, however, is done at a sacrifice of the lustre of the yarn or resultant fabric, so highly valued in connection with silk.

Singles silk will produce a cloth which possesses a softness and brilliancy unattainable with silk which has been twisted; i. e., tram or organzine, a feature which at once will demonstrate to manufacturers the advantage of not imparting to silk any more twist than is absolutely necessary on account of scouring, dyeing and weaving processes.

However, previously to using singles silk by the mill, the same as a rule, with the exception of Italian silk requires:

"CLEANING." In this process the silk thread is simply transferred from one bobbin to another and

passes during the transfer through the cleaner, which consists of two sufficiently close parallel plates to catch any irregularity upon the silk and at the same time arrest the motion of the spindle until the operator removes the cause.

"TRAM" silk is the union of two, three or more singles only slightly twisted together and is known either as two-thread tram, three-thread tram, etc., according to how many singles are used in the compound thread.

It will be readily understood that the union of the singles into tram should be accomplished with as little twist as is possible, since twisting is done at an expense to the lustre of the yarn and resultant fabric, as well as imparting a harder feel to both. Again it must be kept in mind that the less twist the better the "cover" to the cloth woven, i. e., the less the individual threads composing the fabric will reveal themselves to the naked eye.

Tram as a rule is used boiled off and only rarely in the gum, being degummed before dyeing in the hank. By information thus imparted we have shown that a variation in twist will cause a variation in the lustre; therefore by making use of this item, i. e., using two different twisted yarns to bring out the principal parts of a design in connection with uni-colored cloth.

"ORGANZINE" silk is the union of a two-thread tram yarn with a great many turns per inch and is chiefly used for warp, the amount of twist given the silk depending upon the texture and weave of the cloth, i. e., the higher the texture and the tighter the weave the more twist required for the organzine; however, the affair must not be overdone when lustre is an important factor to the fabric, although in connection with some fabrics like for example umbrella cloth, strength may be the most important item to be aimed at in the construction of the fabric.

Finishing Materials Used.

FOR STIFFENING:—The starch of wheat, potato, rice, corn and sago; flour, dextrin, glue, gelatin, glucose, gum arabic, gum tragacanth, gum tragasol, Iceland moss, Irish moss.

FOR SOFTENING:—Turkey red oil, soaps, tallow, stearin, paraffin, olive oil, Japan wax, spermaceti.

HYGROSCOPIC AGENTS:—Ammonium chlorides, magnesium chloride, zinc chloride, calcium chloride, glycerol, glucose cane sugar.

FOR FILLING:—Kaolin (or China clay, an hydrated silicate of alumina), gypsum (calcium sulphate), talc (magnesium silicate), whiting (calcium carbonate), blanc fixe (barium sulphate).

COLORED WEIGHTING AGENTS:—Ultramarine (a mixture of sodium-aluminium silicate with polysulphides of soda), prussian blue $\text{Fe}_4(\text{FeC}_6\text{N}_6)_3$, smalt (finely powdered cobalt silicate), ochre (a mixture of silica, clay and hydrated oxide of iron), indigo carmin (soluble sulphate of indigo).

ILLUMINATING AGENTS:—Copper, brass, silver and aluminium in a finely powdered condition; powdered metallic sulphides.

FOR WATERPROOFING:—Aluminium, magnesium and lead soaps, gelatin, tannin, paraffin, caoutchouc, ceresin (purified ozokerite), waxes and oils, beeswax.

FOR FIREPROOFING:—Sodium tungstate, sodium baborate, sodium silicate, ammonium phosphate.

ANTISEPTIC AGENTS:—Salicylic acid, carbolic acid, formic acid, boric acid, borax, camphor.