

## An Important Advance in the Dyeing of Artificial Silk

By *W. Alterhoff*

Artificial Silk has scored a huge success!—All statistics prove the astonishing increase in the manufacture and the consumption of Artificial Silk. Therefore many concerns dealing with this yarn have tried to work on more economical lines, yet giving a greater production. As real silk has lost some of its former standing on the market, owing to the increasing demand for Artificial Silk Dyers have more or less been compelled to find a good and quick method for treating this yarn in order to cope with this increasing demand of the market, and with improvements as regards quality. For these reasons the Dyer must keep himself informed with all latest developments regarding the various classes of Artificial Silk yarns. With its adaptability for all possible purposes this yarn has a very bright outlook for the future, with the opening of new markets.

A special difficulty in the treatment of Artificial Silk is the unevenness of the dyeing, so often deplored by experts, this difficulty is caused, as is generally known, partly because of the nature of the fibre, being an artificial product, and therefore cannot replace the natural product in every case; there are further some dye-technical reasons such as the great affinity of Artificial Silk for the dyestuffs; a false application of the bath; too great an addition of Glauber's Salts; an insufficient cleaning of the cistern before dyeing, etc. A very important point is the regularity of the treatment of the yarn in the dyebath, it is therefore not astonishing to find that machine dyeing has been coming more into use for the Artificial Silk yarns. Messrs. *Tillmann Gerber Söhne & Gebr. Wansleben, Krefeld*, have increased the range of available machines with a new Patent machine, and it is a very valuable link for the future.

The difference between this new Spray Dyeing Machine and those at present in use, is that the skeins hanging on the rollers are not only immersed in the dye liquor, but are simultaneously sprayed from both inside and outside with the liquor through suitable spray pipes specially arranged, as in the case

of a skein washing machine. As the machine has also water connections, the skeins can be washed and brightened immediately after having been dyed, simply by pumping off the dye liquor to a reserve cistern, and running in a special warm bath, without any unloading of the skeins being necessary.

The writer of these lines has seen these machines at work in one of the largest artificial silk dyehouses in Germany, and would like to give a short description of the method of working. The machine in question was of the large type, dyeing simultaneously approximately 100 kilos of yarn. During the preparation of a warm bath of about 50—60° C with an addition of 2% Monopol Soap, the Skeins were hung on the rollers, which were then hydraulically lowered, and run through the bath until thoroughly wetted out. Then the rollers are hydraulically raised again and the bath heated up, by a new boiling device which is fitted to the bottom of the cistern, no steam coils being necessary, then the dyestuff was added. This new boiling system produces in the shortest possible time an absolutely faultless and even dyebath, in spite of the fact that the dyestuff was added direct to the bath in a dry form.

The yarn under treatment had to be dyed in a fashionable shade to sample; throughout the whole process the machine only required the attention of one man, and although it was a difficult shade to dye, the goods were finished in three quarters of an hour, with, in this case, three additions of dyestuff until the required shade was obtained, the results being perfect in every respect. This short time was not only due to the regular movements of the rollers, but also mainly due to the spraying mechanism by which the skeins were intensively and evenly sprayed, the dyestuff penetrating through the fibres. The dyeing process being finished, and the dyestuff having been drawn off by pumps, the skeins were rinsed and brightened in a luke warm bath containing a certain percentage of Formic acid and some Oil emulsion. The same weight of yarn, when processed in

the usual everyday method, requires not only more men but three or four times more time, the process being much longer until the shade is matched, and the yarn is ready for the Shaking Machine or the Drying Room.

A further advantage of the machine is that the skeins remain evenly laid out on the rollers during the whole process, there being no tendency for the yarn to creep to the flanges of the rollers, as in the normal type of dyeing machine, thus requiring a good deal of extra attention. A further point to note is that the Cisterns are lined with Porcelain Plates, which are perfectly smooth, and are easily and quickly cleaned out ready for the next shade. It is further possible to place above the machine a reservoir to contain a dyestuff that has been used, which is too valuable to

be run away to waste, for example a Black can be stored for later use. The three sizes of roller groups, at present built, can be combined in any way, according to the desired production.

It cannot be denied that the advent of this machine will cause a change in many works, where more efficient and quicker treatment of the yarn is desired, and one must also acknowledge that the machine is built in a good solid construction with the finest possible workmanship.

Several critics of the Spray dyeing method, having seen these machines working, have had to confess that the results were astounding, it is said that success crowns work, and in this case there is no doubt that Messrs. Gerber's will reap the benefit from the successes of their machine.