

The vast majority of the yarns produced commercially today are plain yarns – that is, they exhibit an evenness of colour and texture, and a uniformity of structure throughout the yarn. Such yarns may be compared with plain coloured cylinders or rods of regular diameter. Attaining a perfect regularity of colour and structure has been the aim of much of the technical research and innovation in textiles for many hundreds of years.

However, at some point in the past, a fabric designer realised that what seemed to be an imperfection in the yarn could, in some cases, create a pleasing effect in the fabric. As a result, research has also been undertaken to devise new ways of manufacturing yarns with these ‘planned imperfections’, or of making fabrics which demonstrate the textural variety that seems to be so appealing. These yarns are described as ‘fancy yarns’ or ‘novelty yarns’, or, in the case of a specific family of yarns created by extensions and elaborations of the doubling system, as ‘fancy doubled yarns’.

In the past few centuries, fancy effects have been produced in fabrics by a variety of means, only one of which has involved the inclusion of fancy doubled yarns or other novelty yarns. Although fancy effect yarns had been available before that time, it was in a relatively restricted range and, more importantly, in very limited quantities. The first developments lay in the creation of fancy doubled yarns – that is to say, the finished fancy yarns were created by assembling two or more other yarns using a doubling process. Simple doubling frames may still be used to create some of these effects, although clearly, as the possibilities of this process began to be understood, more complex effects began to be imagined and more complex doubling frames were designed to make them possible. This relatively unassuming beginning was followed by the development of a wide range of other fancy yarns, created by a variety of methods which bear only the vaguest relation to the doubling process as it is most generally understood.

For the purposes of this publication, we shall employ the definition of a ‘fancy yarn’ which is given in the next section. It is clear that as still more technical advances are made, the resulting innovations in yarn production

may, in due course, supersede some of the production methods described later in this volume. However, it is our hope and belief that the broad outline and basis of this work will remain valid.

## 1.1 Definition

‘Fancy yarns’ are those in which some deliberate decorative discontinuity or interruption is introduced, of either colour or form, or of both colour and form. This discontinuity is incorporated with the intention of producing an enhanced aesthetic effect. In discussing fancy effects in fabric, we must also include the metallic yarns and yarns that have a metallic appearance, and therefore in the discussion of fancy yarn structures we have included a short section about these yarns, although by the strict terms of the definition, metallic yarns may not be ‘fancy’ since they may not demonstrate any visible discontinuity of either colour or form.

This definition therefore excludes from our consideration those yarns whose appearance and characteristics are designed for inclusion in technical textiles.

Most fancy yarns are produced by specialist fancy spinners, using machines modified or developed for the purpose. Others are produced from ‘fancy slivers’, which are used as minor components in yarns made by spinners using normal equipment. Still others are made exclusively from continuous filament, using adaptations or extensions of the airjet texturing process. Finally, it is also possible to produce an appearance that resembles some of the effects produced by incorporating slub yarns in a woven fabric, without the expense in materials incurred by the use of the yarns themselves. The skilled programming of a jacquard-controlled weaving machine makes it possible to mimic the appearance of a slub in the weft using ordinary straight yarns. Here, of course, the expense spared in purchasing slubbed yarns has been spent on the purchase of an advanced weaving machine and its programming.

A fancy yarn is almost invariably complex in construction, with the natural result that the application of these more time-consuming or complex manufacturing processes makes the yarn more expensive than a plain yarn would be. It may contain many different components, filament or staple, natural or synthetic. The most luxurious yarns involve the ‘noble’ fibres such as cashmere, mohair, angora, or other more expensive natural fibres such as linen or silk. In some cases, however, an effect may best be obtained by the use of a synthetic – for example, the gleam of a metallic thread has no natural fibre counterpart, and slit films can also be used to remarkable effect.

The constructional complexities are most often introduced by employing a complex drafting and delivery system that provides for a choice of several

different paths for the feedstock to take from the creel on which the component yarns are arranged to the spinning head where they are combined to create the fancy yarn. These 'effect' components may involve sliver or roving, or yarn, or sometimes may even include continuous filaments. The most versatile fancy yarn producing spinning machines will allow both for the drafting of a sliver or roving, and at the same time for the undrafted and possibly overfed delivery of yarn and filament feedstocks. The components are then entrapped to a greater or lesser extent by the core yarns and, in most cases, these complex yarns are then in the final instance bound by a fine yarn or filament binder.

It should already be clear that fancy yarns present their own particular challenges where design and production are concerned; these matters will be discussed in more detail in later chapters.

## **1.2 Purpose and scope**

We intend to discuss the manufacture, design, and marketing of the fancy yarns that are sold commercially in order to add decorative elements in the design of an item of apparel or household furnishing. Generally, but not invariably, these fancy yarns feature the discontinuity or interruption of a mechanical effect, such as an irregular variation in the cross section or the contour of a yarn. They may also feature, or may feature instead, variations in colour or colour effects. We will make no attempt to discuss the complex yarns intended for use in technical textiles where the structural complexity is developed for the sake of performance, perhaps involving a particular combination of component fibres, but where the form of the yarn is plain. Nor will we attempt to cover the myriad yarns and combinations of yarns created in textile art, since it is rare for these combinations to be developed or produced in such quantities as to become true commercial products.

Furthermore, since computer-controlled machinery is now almost ubiquitous, and the contribution of computers to many aspects of production, planning and control is certainly taken for granted, it does not seem unreasonable to include a section that discusses briefly the development of computer applications as they seem relevant to the textile industry. Nor is it irrelevant to speculate on the range of possibilities that are as yet unexplored.

## **1.3 Methodology**

In assembling this work, which is intended to provide an introduction to fancy yarns and fancy doubled yarns in commercial textile manufacture, we have made use of a wide variety of sources. Technical literature, information from spinning machinery manufacturers, papers and patent applica-

tions have contributed to the technical background and assisted us in defining the spinning techniques employed and the equipment devised to deliver those techniques. For general matters relating to fashion, marketing and management, we have taken our inspiration from the Financial Times, its 'Management' and 'Marketing' occasional series, and its monthly magazine 'How To Spend It', as well as from a variety of other fashion, design and management publications. Alexis de Tocqueville's 'Democracy in America' and 'The Goal' by Eliyahu M. Goldratt and Jeff Cox provided food for thought, as did 'The Tablet', 'International Textiles', 'Textile Progress', and various issues of the RSA Journal, the Journal of the Institute of Materials, and the Journal of the Textile Institute. For our information on the historical development of textiles and in particular fancy yarns, we are indebted to respondents at the Whitworth Gallery, The Museum of London, The Victoria and Albert Museum and the Musée de Costume in Paris. In addition, a variety of websites and Internet communities indicated areas of concern and offered some pointers for research. Last, but by no means least, we have had considerable willing and cheerful assistance from respondents in the many companies interested in fancy yarns, either because they make them, use them, or use fabrics that include them.

Some of the yarns illustrating the section on fancy yarn structures were provided by Spectrum Yarns Ltd, while others are taken from the authors' own collections and from the collection of Mr Peter Byrom, OBE, who has taken great interest in this project, and who selected them from the ranges of Ferguson's of Stockport in 1952, to illustrate and illuminate his own detailed notes on this subject. These yarns were selected for their relative simplicity because they illustrate clearly the yarn structures that are discussed in this text. Many more modern yarns, benefiting as they do from the broader capabilities of modern electronic control systems, combine two or more structures to create a more complex and unusual overall appearance, and therefore do not demonstrate a single effect sufficiently unambiguously for our purpose.