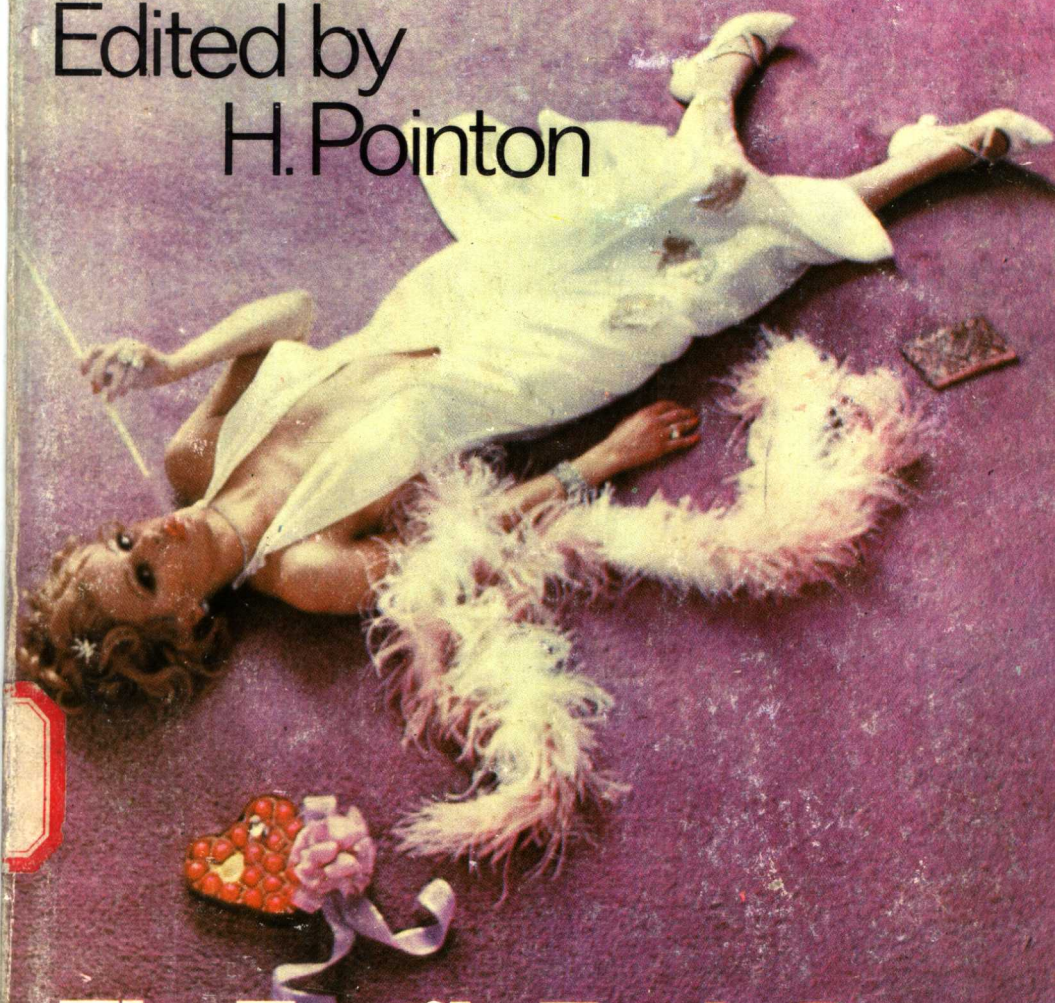


# carpet surfaces

Edited by  
H. Pointon



**The Textile Trade Press**

# **Carpet Surfaces**

Edited by  
**H. Pointon, A.T.I., F.R.S.A.**

**The Textile Trade Press**  
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Stockport  
England

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The contents of this book are based on a series of papers given at a two-day symposium held in:

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Blackburn College of Technology and Design,  
head of department J. N. Atherton, M.A., A.R.I.C.A., A.T.I.  
and organised by H. Pointon, A.T.I., F.R.S.A., deputy head of department.

The views expressed in various papers are those of the respective authors and do not necessarily represent the views of their respective organisations, the editor or the publishers.

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# Foreword

Following the immense success of the conference on *Carpet Substrates* held at Bradford University, a second symposium was organised and held at the Blackburn and Burnley College of Science and Technology in 1974.

As with the Bradford symposium it was decided to publish the papers in book form in order to make them available to a far wider public.

In preparing the publication of these papers it became evident that certain subjects had either been overlooked or dealt with somewhat sketchily. Accordingly it was decided that some additional material would be added to make this work of more use to the carpet manufacturers of the world who greeted the companion volume *Carpet Substrates* with such interest and support.

No apology is felt to be necessary for the essentially 'commercial' character of some of the papers, for really that is what the trade is all about.

Because of the support of advertisers it has proved possible for us to include in the book a number of full colour illustrations which otherwise would have been shown only in black and white and which could well have lost much of their impact and possibly clarity.

The carpet trade is in a state of transition, even within the tufted section. The future of the Blackburn Rivet Head process is apparently in question, but again no excuse is made for including the paper about this process, for machines have been built and have produced carpet and the process undeniably is feasible.

Although changes have taken place since the original symposium in 1974, the essential validity of the content of the various papers is quite unaffected and we believe that in presenting these collected and augmented papers about *Carpet Surfaces* we have, together with the companion volume *Carpet Substrates* two books which will, for a considerable time serve as base-books about one part of the world textile industry which continues to grow in the face of all adversity and economic predictions. It is likely to continue to grow, even if at a somewhat slower rate in the developed countries, in the future.

*The Publisher*

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## 1. REQUIREMENTS OF A CARPET PILE

by A. B. Marsden-Smedley, Carpets International Ltd.

My remarks are very general and intended to give an introduction to the main theme of this work. And what better way than showing you what is available today. I cannot pretend that the collection I have put together is comprehensive but it should give some idea of the enormous variety of carpet surfaces which are available today in Britain and will, I hope, give the following authors an opportunity of making their comments against a background of known types of carpet.

What do we require from the pile of a carpet? This young lady (*figure 1*) seems to me to have no doubt what she requires. If for example you put her on say a piece of coconut matting, I doubt whether even the most objective carpet classification scheme would define it as being suitable for the purpose she had in mind. But this picture serves to remind us that it is the surface of the carpet, which controls the fitness of the carpet for the end-use for which it is designed.

I have broken down carpets into seven groups and I propose to discuss these one at a time and then discuss briefly the fibre or yarn requirements in each.

First of all let us take the shags.

You have a choice of:

- method of manufacture
- pile density
- rows per inch warpways
- rows per inch weftways
- pile height
- patterned or plain
- textured or un-textured
- cut or loop pile
- or even a mixture

These are all matters about which comment will be made in the different sections of this book.

But let me give some idea of the types of pile which we will see increasing during the next few years. I have already referred to the explosive growth in printed tufted carpet. The following graphs will show what I mean. *Figure 2* shows the expansion by square yards which has taken place in the soft floor-covering market up until the middle of 1973 and *figure 3* shows the same picture in terms of market share. It is clear from these that tufted is moving fast ahead of the field and at the present time the majority of this growth is going to the printed carpet. Currently its pile is nylon and nearly all in loop pile construction, although the first cut pile nylons are now on the market. In my view, for some time to come, nylons will continue to dominate this part of the market, firstly in loop, secondly in cut pile and thirdly in printed shags which are very much in vogue in America at the moment. This assertion of mine is borne out by the following graphs in *figures 4 and 5*. In the first is shown the actual pile fibre consumption in carpet manufacture up to the middle of 1973 and in the second is the same picture in terms of market share. In both graphs the big gains have gone to nylon, the only other worthwhile gain going to acrylics. It will be noted, however, that wool still leads the field, although slightly losing out a little now on market share.

I believe that acrylics have just started to chase hard after nylons. They were slower to start in carpets, but will take an increasing share, particularly in better quality carpets and particularly in traditional woven carpets.

Wool will continue as an important fibre and its total volume is unlikely to vary greatly over the next few years, although its market share will probably continue to fall as nylons and acrylics grow in importance.

But what does all this variety mean? The pile of a carpet must be suitable for the purpose in mind and so the requirements of a carpet pile must begin in the marketing department. It is its job to decide what the market demands — where there is a niche and what sort of price is expected.

And so the new quality is conceived. The marketing department's requirements are passed on to the technicians and converted into terms of a performance requirement and as all know, carpet performance depends primarily on pile.

So what do we look for in creating carpet performance? Firstly I think you must consider fibre and I say *firstly*, because the fibre you decide to use will not only have an important bearing on the final price of the carpet, but may in many instances be dictated by market requirements. I am not going to give a detailed breakdown of fibre properties and their effect on pile performance because I expect this to be dealt with subsequently. The performance of particular fibres in a carpet can be broken down into two groups, those inherent in the fibre and those given to the fibre by yarn or carpet construction. In the former category I would put:

- dyeability      ● settability      ● static propensity
- flammability    ● soil hiding ability    ● chemical degradation resistance





Figure 1

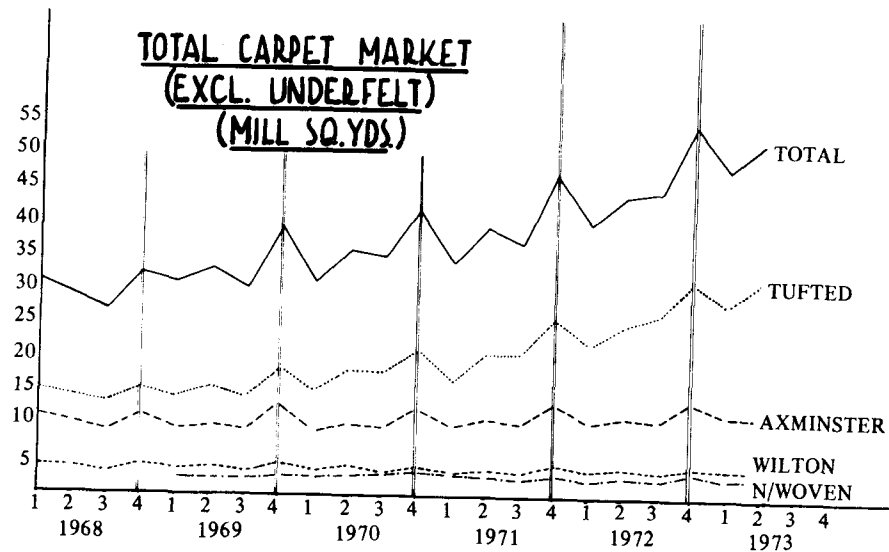


Figure 2

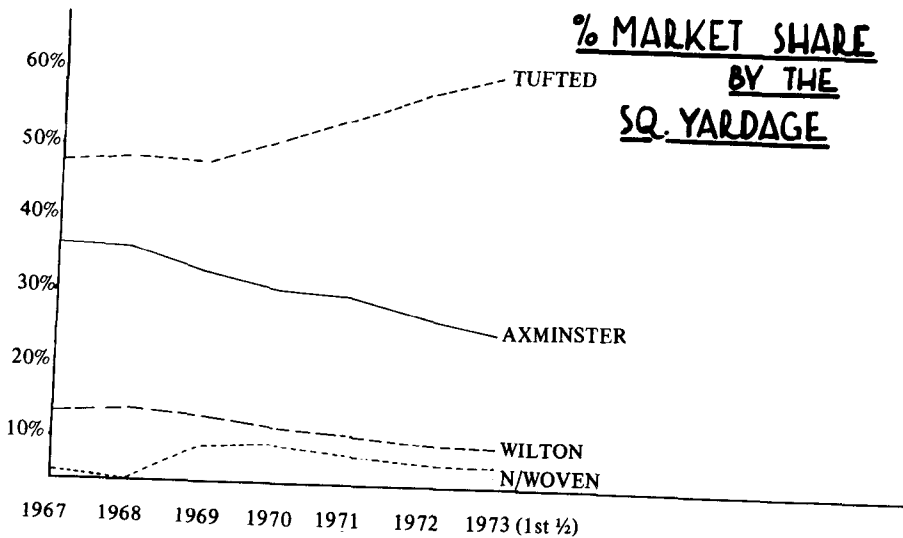
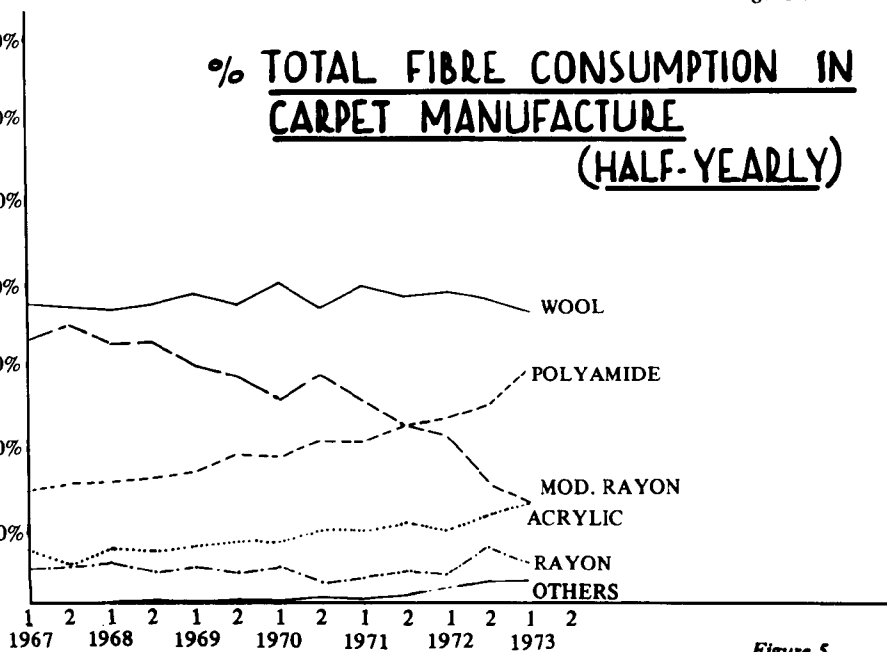
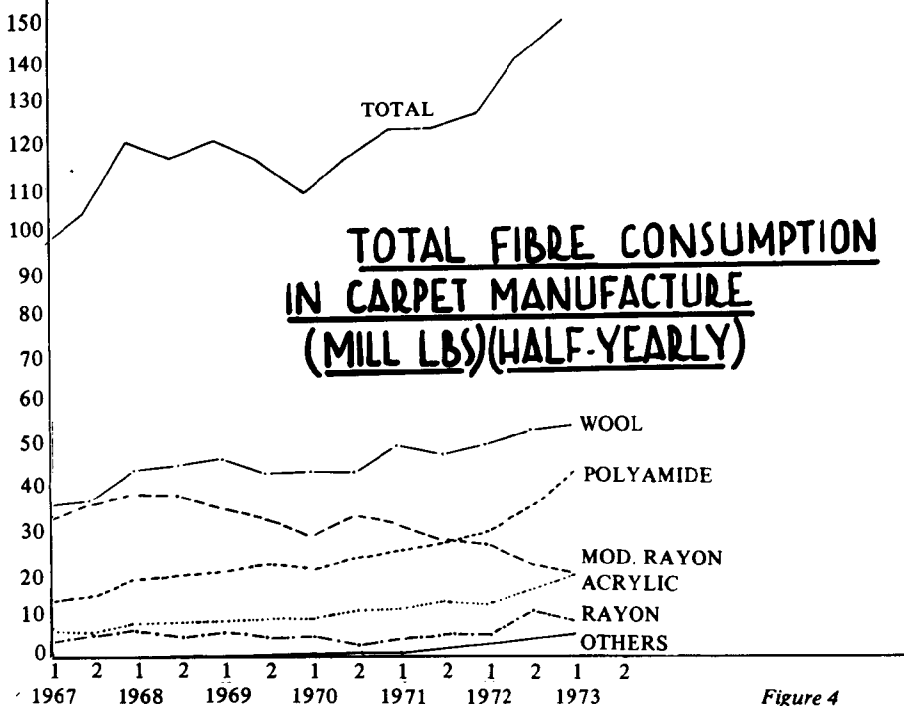


Figure 3



To some extent I would also include in this list resistance to abrasion and resilience. Having decided your generic fibre, your fibre producer will offer variations in denier, fibre length or BCF, fibre cross-section and crimp and all these properties will have a marked effect on the appearance of the finished carpet and its performance.

But you will have only just started to count the variables at this stage. Fibres must be spun (or bulked with BCF) and then folded (two-fold, three fold or four-fold) and then dyed, or not, as the case may be and then set or not, depending on the performance for which you intend to market your carpet. When you have decided on your yarn construction you are faced with the problems of carpet construction.

### Shags

First let us look at shags. For some time this has been a growing area of the market and we even see this style of carpet in living rooms and some contract areas in hotels and the like.

At the cheaper end can be cited a spun nylon shag and probably the best example of a bedroom quality is the polyester shag. Moving up the social scale is probably the medium to top quality all wool shag, such as *Super Peerless*.

Shags of course are also made in the most luxurious qualities. First in polyester is *Barwick's Top Floor*, second and third, both in wool, are *Berber* and *G Major*. So far as the Berber is concerned, it represents quite a family of carpets, the colouring of which comes from the colour of natural wools. Of course there are cheaper Berbers in other fibres, but all use basically natural wool colours to achieve the effect.

I would revert to the quality *G Major*, probably this is the most luxurious quality of carpet available as standard from a manufacturer in Britain. It is interesting to contrast it with say *Bliss* and judge the range of quality, handle the fibre type available in this group of carpets.

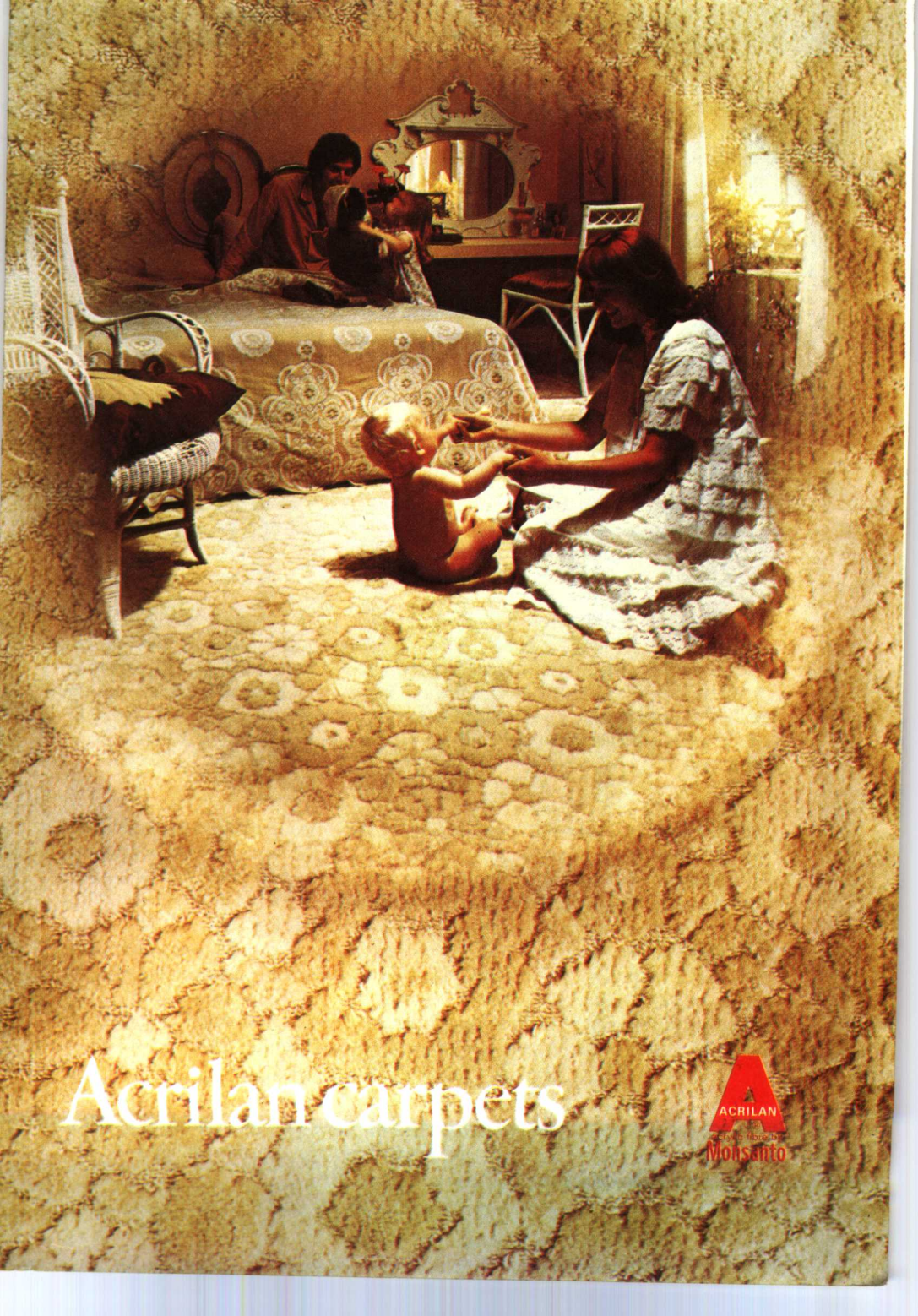
### Plushes

I put in this sub-heading because I believe it may become more important. There are comparatively few true plushes on the British market at the moment, but the style is popular in America and we often find that trends of this kind cross the Atlantic in due course. Two may be mentioned, one in wool (*Farmer George*) and one in 80/20 wool/nylon (*Georgian*). Certainly wool is still the best fibre for this style of carpet, although there are important lines of plushes in synthetic fibres available in the United States.

### Velvets

This is a huge group and covers products from all types of carpet manufacturers. When one talks of velvets many people think of a traditional velvet Wilton. An excellent one is an 80/20 wool/nylon (*Wessex*), but when I talk about a velvet as a style, what I mean is a carpet with a relatively short, relatively dense pile, plain or patterned and made on any type of machine.





Acrilan carpets



The finest velvet still available has a worsted pile. The cost of production of this type has risen enormously in the last generation and today very little worsted carpet is made, but it is still the ultimate and worth bearing in mind because one day the use of a suitable synthetic fibre might bring it back to popularity again. Indeed, on the Continent, worsted-type carpets are not uncommon in nylon.

I include also the huge choice which is available in Axminster carpets in the velvet area. Five such carpets represent a cross-section of qualities available and of fibres used. The first two are general purpose Axminsters in acrylic fibre (*Alpha* and *Shirehall*). At roughly the same price it is interesting to note they have different surface effects and the very different styles of pattern. Nylon too is being used in increasing quantities in Axminster and an excellent example of this is *Sandown*.

The last two qualities are included to show the choice of luxury carpet open to the consumer. One (*Guildhall*) has a standard 80/20 wool/nylon pile and is a top domestic quality and the other is probably the finest Axminster made anywhere in the world in super luxury quality 100% wool (*Sultana*).

It may be wondered why only woven carpets have been included in this group. The tufted industry produces a great deal of velvet type carpet, but I believe the style is more typical of the woven industry.

### Twists

This is another important sector. First of all is a 100% nylon popularly priced, hard wearing cloth (*Silver Label*). Secondly is a general purpose 80/20 wool/nylon widely used in any domestic area (*Super Charter*) and in many contract areas where the expected traffic level is not too high. Finally we have a heavy contract quality (*Super Wessex Twist*), again in 80/20 wool/nylon and this is designed for use in general office or similar contract areas where very heavy traffic is anticipated.

### Loop

The next group – loop pile carpets contains the fastest growing area in the trade today – is printing. A popularly priced printed carpet represents many millions of square yards of annual production. The second is a fine gauge low loop pile, also printed, and suitable for contract installations as well as domestic use. The third example is again in the popular price bracket but is a warp printed carpet produced by the Crawford-Pickering process. All three carpets have nylon pile because, with present technology, nylon is the easiest fibre to print and also the easiest fibre from which to make a relatively low pile weight carpet with adequate performance. Growth in printing has been explosive and the lion's share of growth over the next few years will come from this area.

But also in loop pile carpets there are many interesting textures available. Two examples may be mentioned, one in acrylic fibre (*Keltic*) and one in an 80/20 worsted wool/nylon, both designed for the super contract market. These illustrate again the enormous variety in price, style and quality which is available on the market.

## Textures

Three carpets represent this group which is typical of a very important part of the tufted production now available. The first is in acrylic and is a typical medium quality domestic carpet, the second is a cheap domestic carpet in 100% nylon and the third is a luxury domestic carpet in acrylic fibre.

## Odds and Ends

The samples noted above cover the conventional woven or tufted offerings, but there are other methods of making soft floorcoverings.

Firstly, there is a flocked carpet (*Flotex*). It is a fairly recent arrival on the market so I can say very little about its performance, but no doubt it will find its niche in due course.

Secondly, a well established carpet in the tuft-bonded sector, suitable for contract installations and made from 100% nylon is *Debron*.

Thirdly, a carpet with which I have been very much associated myself, a fibre bonded carpet made from ICI heterofil fibre. The interesting surface texture has proved equally popular in domestic and contract installations.

And finally, two carpets which must not be overlooked, because again they represent quite an important group in the market, one is sisal (*Tintawn*) and the other is rush matting.

I am not too clear as to what will happen to polypropylene and polyester in the carpet trade. I think polyesters will become important as better carpet types are developed. The experts tell me that polyester will always be cheaper to produce than polyamides. I am not sure this will be true of polypropylene, except in the area of bonded needlefelts where it will continue to be important. However, the story seems to be growth all along the line, except for the rayons and modified rayons and I am afraid these are on a high road to nowhere.

And finally as to style: Shags and long pile carpets are definitely in and I expect them to have a good run for the next three or four years, but I would put my money on patterned as the real growth area. Those who have studied fashion in clothes, furnishing fabrics or soft floorcoverings will know that particular international styles tend to achieve dominance in certain spheres for short periods. I can only recall the vogue a few years back for Scandinavian design in all household goods, a phase which has now greatly waned. Once upon a time, too, nobody would be seen out of doors except in Italian shoes and there are those in France who still cling to the idea that Paris is the centre of fashion. I believe that we are on the verge of the era of English design in carpets. The good old multi-coloured splodge so elegantly described by the French as a 'motor smash' design is coming into its own. To those like myself, who prefer plain carpets, this may seem upsetting, but it could do a good deal for the profits of British carpet manufacturers and possibly even for our balance of payments.

## **Carpet qualities mentioned above**

<i>Company</i>	<i>Quality</i>	<i>Pile</i>	<i>Comments</i>
<b>Shags</b>			
Kosset	Prairie	Spun nylon	Cheap
Lancaster	Bliss	Polyester	Cheap bedroom qual.
Gilt Edge	Super Peerless	100% wool	General purpose
Barwick	Top Floor	100% polyester	Luxury quality
Quayle	Berber	100% wool	Luxury quality
Georgian	G Major	100% wool	Luxury quality
<b>Plushes</b>			
Georgian	Farmer George	100% wool	Luxury quality
Georgian	Georgian	80% wool/20% nylon	General purpose
<b>Velvets</b>			
Gilt Edge	Wessex	80% wool/20% nylon	General purpose
Gilt Edge	Tobruk	80% wool/20% nylon	Super quality Tobruk
Crossleys	Alpha	Acrylic	General purpose
Gilt Edge	Shirehall	Acrylic	General purpose
C.M.C.	Sandown	100% nylon	General purpose
Gilt Edge	Guildhall	80% wool/20% nylon	Luxury domestic
Crossleys	Sultana	100% wool	Super luxury
<b>Twists</b>			
Kosset	Silver Label	100% nylon	Popular priced – hard wearing
Wilton Royal	Super Charter	80% wool/20% nylon	General purpose
Gilt Edge	Super Wessex Twist	80% wool/20% nylon	Heavy contract
<b>Loop</b>			
Associated Weavers	Conquest	Nylon	Cheap printed
Associated Weavers	Chelsea	Nylon	Printed contract
Kosset	Monte Carlo	Nylon	Printed
Crawford-Pickering			
Crossleys	Keltic	Acrylic	Super contract
Crossleys	Brussels Collection	80% wool/20% nylon	Worsted super contract
<b>Textures</b>			
Kosset	Crimson Label	Acrylic	Medium domestic
Rivington	Banner	100% nylon	Cheap domestic
Barwick	Plume	100% acrylic	Luxury domestic



<i>Company</i>	<i>Quality</i>	<i>Pile</i>	<i>Comments</i>
<b>Odds and Ends</b>	Flotex	100% nylon flocked pile	
C.M.C.	Debron	100% nylon	Medium contract quality
Gilt Edge	Super Endura	50% nylon/50% polyester	Heavy domestic and contract quality
Tintawn	Bouclé	Sisal	
Phillipine Rush Matting	Square	100% rush	