

The Textile Mercury:

A Representative Weekly Journal for

Spinners, Manufacturers, Machinists, Bleachers, Colourists, and Merchants,

In all Branches of the Textile Industries.

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The Textile Mercury.

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Articles, Correspondence, Reports, Items of News, on all matters of novelty and interest bearing upon the Textile Industries, home or foreign, are solicited. Correspondents should write as briefly as possible, on one side only of the paper, and in all cases give their names and addresses, not necessarily for publication, but as a guarantee of good faith. When payment is expected, an intimation to that effect should be sent with the contribution. The Editor will do his best to return ineligible MSS., if accompanied by the requisite postage stamps, but will not guarantee their safe return.

. Readers at home and abroad are invited to avail themselves (gratis) of our columns, for the purpose of entering into communication with machine makers, or others able to supply their wants, and for obtaining any other information on textile matters which they may desire. Their names will not be published unless requested.

All communications to the Editorial department should reach the office, 23, Strutt Street, Manchester, early in the week in order to receive attention in the next issue.

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Current Topics.

RESPONSIBILITIES UNDER CLOTH CONTRACTS: A WARNING.

It is to be regretted that the relations between workers and their employers, and producers and distributors, cannot be maintained in a state of reasonable harmony. If this could be accomplished and perpetuated, life would indeed be worth living compared with what it is at present. And yet there is really no reason why it should not be so, except that the various parties disregard too much the distinction between right and wrong, between fair and iniquitous dealing. It is owing to this that the task of maintaining life is hardly compensated by the happiness it may yield. That which should be pleasant-intercourse between man and man has become a contest of wits and unscrupulousness, wherein the slowest and the most honest often go to the wall. Sometimes these wrong-doings are afterwards buttressed up by perjury and fraud, crimes which, unfortunately, our judicial system renders it almost impossible to expose. But it is not of this extreme form of unfair dealing we wish to offer any remark; it is rather of that known by the name of "sharpness," or "smartness," as our Yankee friends would term it. This consists in snatching advantages from those with whom a person may be dealing; and the converse of this—shuffling upon others disadvantages that a person ought rightfully to bear himself. Under the head of the latter we hear that several firms in this city are endeavouring to disburden their own legitimate trade risks by shifting them to the shoulders of manufacturers. Owing to the unstable condition of silver, and the effect it has had upon the exchanges with silver-using countries, causing serious fluctuations, the conduct of commerce with such countries has been more than usually difficult for some months past, often inducing losses to merchants where profits ought to have resulted. Whilst we may accord sympathy to merchants in these cases, it is far too much to expect that manufacturers should be expected to assume the responsibility and bear the loss. It is a common topic on the Exchange that the firms referred to above are making claims upon manufacturers for losses accruing from this source, especially if the manufacturers have been behindhand in the fulfilment of cloth contracts. Cloth contracts are rarely entered into on the understanding that the time stated therein shall be a hard-and-fast one, because of the extreme difficulty of providing against contingent disturbances in the processes, covering, as they must do, a period of from six to twenty weeks. Though the letter is necessarily definite, the spirit of the contract is regarded as complied with if the order be delivered approximately near the time stated, which is the best that can be done in the case.

In the event of the cloth not being delivered to time, it becomes necessary for the merchant to take up his obligations to his banker, or get them deferred. In the latter event, if the movement of the exchange be adverse to the merchant some amount of loss occurs, and it is this which is being attempted to be put upon the manufacturer. This is not just to the manufacturer, as he may have complied with the spirit of the contract, and on this ground he ought to resist the imposition. Further, there is no legal obligation, and no such claim could be sustained in a court of law. A party to a contract can only be held responsible for the direct consequences resulting therefrom, and not the indirect ones. This is a maxim of English law, and a just and wise one. Were the law otherwise, the cumulation of responsibility would be so enormous that the fate of a kingdom might be devolved upon an individual's head. This being the case, manufacturers who have received such claims should immediately repudiate them, both in their present and future interest, and in that of the trade in which they are engaged. To accept and honour them would be to institute a precedent that would quickly grow into a custom and soon attain the force of common law, binding them to such obligations for ever. The cotton trade has natural responsibilities of its own sufficiently burdensome without accepting those of merchants, which are endeavoured to be foisted upon them by some over-sharp individual who is "trying it on." If a claim of this kind be persisted in, let the matter immediately be placed before the Executive of the Manufacturers' Association, which, if the interests of the trade are seen to be involved therein, will quickly decide upon the grounds it should take up in defence thereof.

ABUSES OF THE SHIPPING TRADE.

One of the greatest hindrances to a healthy expansion of our foreign trade is to be found in the conduct of the small but united band of individuals who act as intermediaries between the manufacturer here and the distributor abroad. An instance of this came under our notice the other day. Not long ago a Midland firm dispatched a traveller to the Cape for the purpose of showing samples to the leading retailers, with the object, of course, of increasing the sales of the house in that district. Amongst the people called upon was a Bloemfontein tradesman, who, after inspecting the goods, promised to send an order through his London shipper. The Midland firm waited some time, but no communication was received from the Metropolis, and a letter was accordingly forwarded to South Africa asking for an explanation. The mail brought back a reply to the effect that an indent had been sent to London, but that the shipper had refused to execute it as he disapproved of orders being

given to straggling travellers. He further added, with the sublimest display of impudence we have ever heard of, that he knew the requirements of the market better than did the Bloemfontein firm!

COMBINATION AMONGST MANUFACTURERS A NECESSITY.

The manufacturer and the shipper have unfortunately long been at variance, the latter standing in the way, and doing all he can to prevent direct intercourse between the producer in this country and the buyer in the Colonies, or elsewhere abroad. The shipper, when he acts solely as a servant of the foreign purchaser, is, it is admitted, a necessity, his services being of the greatest value. But when he purposely overrides the wishes of the Colonial retailer, and conducts the export trade in the manner that may happen to best commend itself to his own taste, the case becomes different. If, for instance, Jones, of Sydney, forwards an indent to a London house for Rylands' Dacca calicoes, or Horrocks's longcloths, and the shipper humbugs Jones by sending some other goods, manufacturers have a distinct grievance. And this is just what does happen frequently, the shipper arrogating to himself the right to cater for what he supposes should be the requirements of the market on the other side. In the Australian trade this evil is, perhaps, the most keenly felt, and it seems a pity that manufacturers cannot combine for the purpose of better conserving their interests in our Colonial trade.

ENGLISH V. GERMAN COAL-TAR COLOURS.

Whenever a paper on coal-tar colours is read before a scientific society there is generally a lament as to this industry being more highly cultivated in Germany than in England, the colour works in the former far outnumbering the latter, and sending out a far larger proportion of new colours. This, however, is not because of any superiority of German chemists over English chemists; indeed we are inclined to think that English chemists are slightly the superior. At the meeting of the British Association at Leeds, Dr. Perkin, who discovered the first coal-tar colour, gave an address on the newest of these fascinating and brilliant compounds, and naturally had to confine most of his remarks to the products of German chemists. In the discussion that ensued—taken part in by several well-known savants—the fact of Germany's superiority in the matter was of course referred to, the general opinion being that it was owing to the fact of greater encouragement having been given to original research on the part of chemists by German colour manufacturers than by their English confrères, and we fear there is much truth in what was said. (Dr. Perkin's son, we may observe, is well known as a chemist of no mean ability, yet we find him neglecting among his numerous researches any that have a bearing on this particular industry, although it would have been a most useful and probably also a profitable one.) However, returning to the original subject, Mr. Ivan Levinstein, in a long letter to the *Manchester Guardian*, combats the views expressed at Leeds, and lays the whole blame at the door of our Patent Office, which permits German chemists to take out ambiguously-worded patents claiming a thousand and one things that they have never discovered, but are shrewd enough to perceive are possible from the operation of the universal laws that underlie the properties of the organic compounds used in the manufacture of coal-tar colours. But, we may be permitted to ask Mr. Levinstein, would not the Patent Office

have granted a similar patent to an English chemist, who could then have shut out the German chemist if only the former had made the original discovery on which the patent was based? Our patent laws, however much they favour foreigners more than other foreign patent laws favour English inventors, are not wholly to blame in the matter. The blame lies mostly at the door of English manufacturing chemists, who have had in times past an idea that they did not want research chemists. Research they said was no good to them, and they would not encourage our chemical professors and lecturers to put their students at work on the subject, whereas the Germans did so, and the consequence has been that for one new colour put on the market by English firms there have been 20 by German firms. We are, however, pleased to know, not only from Mr. Levinstein, but also from personal knowledge, that this feeling is passing away, and we have no doubt that in time we shall see England a great producer of coal-tar colours, and a rival of Germany in the quantity and quality of its products. There is one point in Mr. Levinstein's letter we are pleased to see, which is that the Council of the Manchester Technical School offers facilities for firms to work out problems in dyeing, bleaching, etc. This indicates a new departure on the part of the Council, which at one time set itself against this sort of thing and lost two or three teachers in consequence, at the same time preventing suitable men from applying for the vacancies thereby created.

THE "OWEN JONES" PRIZES.

Amongst the prizes obtainable by students of textile designing are those named in the title of this note, which have just been awarded for this year. This competition was instituted in 1878 by the Council of the Society of Arts, as trustees of the sum of £400 presented to them by the Owen Jones Memorial Committee, being the balance of subscriptions to that fund. The condition attached to the gift was that the Society should expend the interest thereof in prizes to "Students of the School of Art who, in annual competition, produce the best design for Household Furniture, Carpets, Wall-papers and Hangings, Damask, Chintzes, etc., regulated by the principles laid down by Owen Jones." The prizes are awarded on the results of the annual competition of the Science and Art Department. Six prizes were offered for competition in the present year, each prize consisting of a bound copy of Owen Jones's "Principles of Design," and a Bronze Medal. The following is a list of the successful candidates:—

William E. Holt, School of Art, Burnley.—Design for a printed cotton hanging.
Archibald Walker, School of Art, Glasgow.—Design for carpets.
Lindsay Buttersfield, School of Art, South Kensington.—Design for printed tiles.
Mary Mobun, School of Art, Canterbury.—Design for damask; design for tiles.
William H. Cantrill, School of Art, Cavendish-street, Manchester.—Designs for the decoration of a staircase and proscenium of Manchester School of Art.
Emma Hodgkinson, School of Art, Cavendish-street, Manchester.—Design for carpet.

The next award will be made in 1891, when six prizes will be offered for competition. The excellence that results from careful study and labour, we are well aware, usually brings its chief rewards from other sources than prize lists, yet prizes are very desirable testimonials of excellence, and give an additional stimulus to, and sweeten the labour of, attaining it. We trust these will become still more widely known.

INCONSISTENCY IN THE ADMINISTRATION OF JUSTICE.

The aggressive attitude assumed by Trades-Unionism during the last few years, and especially during the past twelve months, is likely to bring into prominence some important questions relating to the administration of justice. Our laws, properly interpreted, are fairly equitable, but there is accorded to or assumed by our judges, stipendiaries, and unpaid magistracy, such a wide latitude of discretion that we are continually being confronted by the most inconsistent awards of punishment for almost identically the same character of offences. Of course there are offences and offences. Say in personal assaults: there is the blow struck on the impulse of the moment under some fancied or actual provocation: there is the deliberate and revengeful assault for injuries done, or supposed to have been done; then there is the malicious and unprovoked attack made to disable the attacked person, whilst the assailant can despoil him of his property; next there is the attack upon a person made to prevent him from following his occupation under such conditions as he may choose to accept: that is to deprive him of his liberty; finally there is the greatest and last of these crimes, those attacks in which it is intended to take life. We are afraid that those who administer our laws do not always fully appreciate the serious importance of the differences between some of these. The attack upon a person's liberty, when accompanied, as is too often the case, by intimidation or violence, or both of these combined, is only less in enormity than the attack upon life. Such, therefore, ought to be punished adequately, as the law really intends should be done. There is too much of a tendency, however, to diminish its importance to the level of a common street brawl, and to fine the aggressors in proportion. We submit that such treatment is improper, and inadequate to deter wrongdoers from the commission of the offence. Such attacks upon liberty, even when not accompanied by personal violence, are highly reprehensible, and are punishable by law even in a civil court, as was proved by the action against the man Judge, at the recent Leeds Assizes. The defendant was mulcted in a heavy fine, the judge holding that the application of opprobrious epithets by trades-unionists to persons not of their way of thinking and acting was slanderous, and as such punishable under the law. In another case, in London, where a trades-unionist attacked a freeman because he chose to work, the stipendiary committed the unionist to prison for six weeks with hard labour, on the ground that such interference accompanied by violence was a serious outrage upon the liberty of the subject, which the community was under the most stringent obligation to defend against attack, from whatever quarter it might come. This we hold to have been a proper interpretation of the law, and a proper punishment for its violation. At Daventry, North Hants, last week, Frederick Inwood, president of the local branch of the National Boot and Shoe Union, Northampton, was fined £10 and costs for unlawfully following Samuel Thomas Potter, messenger to Messrs. Smith and Co., Northampton. The evidence showed that Inwood went to Daventry to interview Potter about work being done there through an agent named Dickens for Messrs. Smith and Co., whose men were on strike. On Potter refusing an interview, it was stated that Inwood persistently "shadowed" him. Here again we may say that the offender has met with his deserts, and trust that if the threatened appeal

take place it will be sustained, in order to teach this class of offenders that such attacks upon public liberty are not according to the law and cannot be allowed. A case has, however, also occurred in Manchester in which a working tailor has been assaulted by a unionist on strike, and the latter having been summoned and convicted of the assault, was fined only 20s. and costs. In this case we say that the enormity of the offence was not appreciated to the full, and not punished adequately. It is in the present circumstances of the industrial world absolutely necessary that those entrusted with the administration of our laws should take careful cognizance of these matters, and not by mistaken lenity encourage their repetition. If they entertain any doubt about their duty in the matter, they have an easy way of solving it in their hands by remitting each case to the Sessions or Assizes, where it can then be dealt with by higher and more skilled judges, who can see the wider ramifications and far-reaching consequences of the principles involved.

SILK CULTURE AND MANUFACTURING IN CHINA.

According to a recent German writer, the raw silk exported from Canton is produced mainly in the neighbourhood of that city, in a tract of country hardly larger than one of the Saxon duchies, and covering the delta between Canton and Macao. The city of Shun-té, in particular, is the centre of a very important silkworm-breeding district. Here the small farmers and peasants dispose of their silk to people in a large way of business, who on fixed market-days consign their goods to silk merchants in Canton connected with foreign houses. The time required for the transit of the silk from the places of production to Canton does not amount to more than a few hours, at the most to a night. Between Canton and Fu-shan (a place about 18 miles S.W. of Canton) is a number of towns and villages in which thousands of weavers and lace-makers are occupied in the manufacture of silk goods, especially silk-stuffs, sewing silk, silk fishing-lines (for the American market), ribbons, sashes, tassels, etc. There are many looms in Canton itself and places for the production of floss-silk, which is used for embroideries by poor women and girls. A large proportion of the satin-stuff woven in Canton is used by the shoemakers, whose trade is very flourishing in that city, and who deal largely in these costly materials, as leather shoes are not appreciated by the Chinese.

THE BOARD OF TRADE RETURNS FOR AUGUST.

The returns of the country's trade for August, which were published on Monday, compare with the same month of last year, when it should be remembered the great strike of dock labourers caused so much interruption to the shipping trade. The total imports are valued at £31,322,897, a decrease of £1,614,191, or 4.9 per cent.; the British exports at £22,817,609, an increase of £1,418,102, or 6.6 per cent. The decrease in the imports is chiefly in raw materials and articles for food. It must be borne in mind that the effect of the strike does not appear in the account of imports, since the goods were on board, and the documents from which the account is made up were duly tendered. But as regards the exports the goods were not shipped, and therefore documents could not be passed. Hence the total imports for the past month are smaller than at first sight appears, while the exports are not so favourable. The receipts of sheep's wool, silk, flax, and hemp are all below the level of last year, and the decreased receipts of wool account for nearly half of the total de-

creased value of that staple. Raw cotton was in advance of last year by nearly 100,000 cwt., and the receipts of jute were so liberal that the fall in price is accounted for. As regards the British exports, enhanced prices have much to do with causing the increased total value. The chief articles so affected are alkali, cement, coal, copper, cotton yarn and piece goods, iron, and salt. The shipments of cotton piece goods to the British East Indies are much in excess, being 213,000,000 yards, compared with 170,000,000 yards. The woollen industry does not appear to be shipping so freely as last year. In the following abstract we give particulars of the imports and exports of textiles, etc., for the month:—

I.—IMPORTS OF FOREIGN AND COLONIAL MERCHANDISE.		Principal Articles.		Quantities.		Value.	
						1889. 1890.	
						Increase or Decrease per cent. compared with August, 1889.	
Cotton, raw	Cwt.	383,266	431,501	+12.7		
Flax	"	136,316	60,908	-44.8		
Hemp	"	185,150	145,548	-21.6		
Jute	Tons	18,610	25,265	+35.8		
Silk, raw	Lbs.	93,832	141,334	+50.2		
Wool, sheep and lambs'	"	84,783,156	23,645,300	-72.1		
Woollen Stuffs	Yds.	8,492,742	6,463,501	-23.7		
Principal Articles.		Value.		Quantity.		Value.	
		1889. 1890.		1889. 1890.		1889. 1890.	
Cotton, raw	£	848,758	1,004,848	+27.5	227.7	
" manufactures	£	104,069	184,992	+77.7	14.0	
Flax	£	203,276	89,801	-55.9	55.9	
Hemp	£	292,764	206,006	-30.3	29.5	
Jute	£	165,486	226,259	+36.7	59.8	
Silk, raw	£	142,938	201,758	+41.9	28.4	
Wool, sheep & lambs'	£	1,275,103	314,514	-75.2	128.2	
Woollen Stuffs	£	766,822	554,497	-27.2	127.0	
		*Increase.		*Decrease.			
II.—EXPORT OF BRITISH AND IRISH PRODUCTS AND MANUFACTURE.		Principal Articles.		Quantities.		Value.	
						1889. 1890.	
						Increase or Decrease per cent. compared with August, 1889.	
Cotton Yarn and Twist	Lb.	20,710,800	20,908,900	+0.9		
" Piece Goods	Yards	416,580,900	462,894,100	+11.1		
Jute Yarn	Lb.	2,135,600	2,255,400	+5.6		
" Piece Goods	Yards	18,787,700	25,106,700	+33.6		
Linen Yarn	Lb.	1,053,800	1,205,000	+14.3		
" Piece Goods	Yards	15,947,900	14,165,600	-11.2		
Wool, sheep and lambs'	Lb.	3,103,900	3,025,900	-2.5		
Woollen and Worsted Yarn	"	5,603,800	5,769,400	+2.9		
" Tissues, heavy and light, broad and narrow	Yards	7,627,300	6,418,600	-15.8		
Worsted Tissues, heavy and light, broad and narrow	"	16,569,300	16,160,500	-2.4		
Woollen Carpets	"	1,812,800	1,951,900	+7.7		
" Flannels	"	369,800	1,029,300	+278.2		
" Blankets	Pairs	183,373	134,020	-26.9		
Principal Articles.		Value.		Quantity.		Value.	
		1889. 1890.		1889. 1890.		1889. 1890.	
						Increase or Decrease per cent. compared with August, 1889.	
Cotton Yarn and Twist	£	969,221	1,012,612	+4.5	4.5	
" Piece Goods	£	4,443,630	4,636,738	+4.3	4.3	
" Other Manufactures	£	651,281	669,984	+2.8		
Haberdashery	£	222,249	294,086	+32.3		
Jute Yarn	£	25,740	25,369	-1.5		
" Piece Goods	£	194,743	195,610	+0.4		
Linen Yarn	£	64,976	65,810	+1.3		
" Piece Goods	£	388,888	333,131	-14.2		
Machinery and Millwork	£	1,280.6	1,781,537	+139.1		
Silk Manufactures	£	244,408	199,473	-20.9		
Wool, sheep and lambs'	£	152,258	93,356	-39.4		
Woollen and Worsted Yarn	£	348,230	373,336	+7.2		
Wool'n Tissues, heavy & light, narrow & broad	£	800,413	722,997	-9.5		
Worsted Tissues, heavy & light, narrow & broad	£	1,015,495	1,033,435	+1.8		
Woollen Carpets	£	181,069	138,098	-23.8		
" Flannels	£	34,608	37,501	+8.4		
" Blankets	£	44,920	48,264	+7.4		
		*Increase.		*Decrease.			

POISONOUS COLOURS.

Poisonous colours injure the human body in three ways. Sometimes the mischief is wrought in the process of manufacture, at other times in the clothing by the action of the deleterious substance on the skin, and in yet other cases in food by its action on the internal organs. We are best informed about the effect of inorganic colours. Colours produced with the help of arsenic, copper, lead, and mercury are in a high degree poisonous under all circumstances. To these must be added as also injurious, although in a far less degree, antimony, tin, cadmium, uranium, zinc, and barium. As regards organic colouring substances, on the other hand, there is less certainty. Dr. Weyl, of Berlin, to whom we are indebted for these remarks, maintains,

however, that with the exception of gamboge and the berries of the *Phytolacca Decandra*, natural colours of this class are non-poisonous. (Of artificial colouring substances of organic origin German law recognises only two as poisonous: coralline and picric acid.) What, then, about the reports which repeatedly appear in the daily press upon cases of poisoning by aniline dyes? Most of them, writes Dr. Weyl, are exaggerated, or are based on inaccurate observation. Some are due not to the colours themselves but to impurities acquired in the process of manufacture. Diseases of the skin occasioned by the presence of tar-dyes in the dress are usually owing to the mordant employed to fix the colour. On the question of skin diseases, however, the views of medical men differ widely, and besides, our knowledge regarding the sensitiveness of the human skin to many of the substances used as mordants is still very defective. Individuality is, undoubtedly, a potent factor. Whilst one person can take in several grains of iodide of potassium every day for several weeks without the slightest injury to health, another exhibits symptoms of disease after very small doses. The acute eruption which breaks out in some cases after eating crabs or strawberries shews distinctly that the sensitiveness of the skin varies in different persons. The average sensitiveness of the human skin can be determined only by experiments on human beings, as the skin of the animals usually selected for such purposes is anatomically very different from man's. But even if a fabric to which a mordant has been applied apparently causes an eruption on the skin, it is not safe to at once infer from this circumstance that the mordant is the real cause. It is possible that the small organisms which are constantly present on the human skin may have entered it through a scratch. The experiments which have been made down to the present time prove that most tar-dyes are not injurious to health. These experiments, however, have invariably had animals for their subjects.

ILLEGAL STRIKES.

There are two ways of doing everything—even of "striking." These are the right and the wrong ways. It is a matter of almost universal experience that on many of the occasions when decision and action are required, the wrong one is chosen. This is very frequently the case amongst operatives when feeling any dissatisfaction with their employment. Under the influence of excited feelings they are apt to leave work in a body, without even having made the slightest representation of their grievances to their employers. In our mills this step is occasionally taken in a most risky and dangerous manner, by suddenly stopping the machinery when all is at full work, with a full head of steam upon the engines. Suddenly relieved of their burden, these "run away," as it is phrased, to the great danger of everybody within reach of the fearfully accelerated driving gear and motors, which by the great development of centrifugal force occasionally fly to pieces. To their credit be it spoken, we do not think this reprehensible course is as common to-day as it was twenty or thirty years ago. Still to abruptly leave employment without a statement of grievances and legal notice is not much better, as it may often involve the cancelling of business contracts, with serious loss to the employer through non-delivery of the goods within the specified time. Such a course is distinctly illegal wherever there is a provision in the employment contract requiring notice to

be given, and those adopting it are liable to be sued for the damages that may result, either from loss of the profit caused by the stoppage of the machinery or through cancellation of contracts. In view of the combatant attitude assumed by trades-union leaders towards employers, and their determination to exact not only the pound of flesh due by the contract but a great deal beyond, we would put it to employers whether it is not high time that their constituents—the working classes—should be taught that they have duties to observe as well as rights to exact, and that when these illegal strikes take place they should not be held responsible to the last penny for the losses that accrue from their actions. A case has just occurred near Barnsley, in the coal trade, which will serve as an illustration. During August some dispute appears to have been going on at the Silkstone Colliery Company's mines at Hoyland, near that town, during which the men appear to have been breaking through the rules and regulations under which they had previously been working, by leaving work on various Saturdays earlier than usual, and absenting themselves altogether on a certain Thursday. They were apparently determined to have their own way irrespective of their duty or any consideration for the rights of their employers. That a body of colliers belonging to the most highly-organized industry in the kingdom should act thus may be a matter of surprise, but it is only another evidence of the mischief done by the bestowal upon strikers of indiscriminating public sympathy—a mischief of which the end has not yet come. The Company, however, to defend its interests, summoned 236 of the miners before the magistrates at Barnsley for absenting themselves from their work, and also sued 176 of them for 6s. 8d. each, loss sustained by their action. On Friday of last week application was made to the magistrates to withdraw these summonses, the cases having been settled by the men agreeing to pay the costs. This case, both in its beginning, course, and conclusion, is typical of hundreds, and of a great number in the textile trades. Now in cases like these why should such kindness be bestowed upon those who neither appreciate nor return it, but who, under the guidance of their leaders, seem to have taken up an attitude of permanent hostility towards those who find them employment? It is simply inviting further trespass upon their rights and interests, and ought no longer to be indulged in.

AN INFLAMMABLE TEXTILE.

A report has been presented to the Board of Health for the department of the Seine in France, concerning a material called *pilou*, which is so inflammable that its use is attended with great danger. Two persons who wore articles of dress made of this material nearly lost their lives, the one when approaching a candle and the other when lighting an oven. According to M. Schützenberger, who furnished the report, *pilou* consists of nothing but cotton. The warp is in fine twisted threads. The weft consists of large threads composed of cotton, only slightly twisted or compressed, which give the tissue its thickness, and fit it to receive a plush-like surface. Under certain conditions of contact with the flame of a candle or of a jet of gas it takes fire and burns rapidly. This property is owing not to the nature of the fibre or to the products used in dyeing, but solely to the physical condition of the thread employed for the weft. *Pilou* thus possesses a greater degree of inflammability than other cotton tissues, and is, therefore, pronounced to be unsafe for use in the manufac-

ture of articles of dress, parts of which hang loosely. According to M. Jungfleisch, the students of the Polytechnic School some years ago wore working pantaloons made of a material similar to *pilou*, a sort of cotton waste which acted like tinder, and was in fact so inflammable that a spark from a cigarette would set it on fire. The Board decided to publish the report of M. Schützenberger in order to acquaint the public with the dangerous nature of this fabric.

FACTORY INSPECTION IN NEW YORK STATE.

Unto the amending of Factory Acts there seems no end, either at home or abroad. Last year the Factory Inspection Law of New York State was amended, and now no male under the age of 18, and no female under the age of 21, can be employed at labour in any manufactory for more than 60 hours a week, unless when repairing machinery, and not more than 10 hours can be permitted to be performed by any such male minor or female under 21 on any day unless for the purpose of making a shorter work-day on the last day of the week, and no labour can be done by them between 9 p.m. and 6 a.m. No child under 14 years of age can be employed in any manufactory, and when children under 16 are employed, there must be placed on file an affidavit made by the parent or guardian stating the age, date, and place of birth of said child, and if said child has no parent or guardian, the affidavit is to be made by the child, the affidavit being open for the inspection of the inspector or his deputies. No child under 16 can be employed who cannot read and write simple sentences in the English language, except during the vacation of public schools in the town where the child lives. The inspector under the amended Act is also empowered to demand a certificate of physical fitness from some regular physician, in the case of children who may seem unable to perform the labour at which they may be employed, and can prohibit the employment of any minor unable to obtain such certificate. The amended Act also provides for suitable fire-escapes. The factory inspector in his annual report to the Legislature points out the insufficient force to properly perform the work delegated to the office. In the State there are 50,000 factories, and only 10 inspectors, while Massachusetts has 22 inspectors for 18,000 factories, and New Jersey 6 inspectors for less than 8,000 factories. These details, supplied by one of our consuls, shew that they have not yet attained perfection in the legislative control of their industrial establishments across the Atlantic any more than we have in this country, whilst even in the matter of inspectorship they are not so well off as the operatives of the United Kingdom.

TEXTILE CONDITIONING HOUSES.

It is like whipping a dead horse to revert to this subject, as—for some unexplained reasons, or, rather, for none at all—England still takes no steps towards establishing conditioning houses for testing the absolute weight and quality of the various raw materials used in textile manufacturing, as other European countries have long since done. The principal conditioning houses in Europe are in connection with the silk industry, France having 11 such houses, while Italy claims 12, and can boast of having established the first of such houses, which was erected at Turin in 1750. The principal operations carried on are the testing of the true natural weight of each bale of silk, and also ascertaining the strength, elasticity, and evenness of the thread. These are considered of the

utmost importance by manufacturers on the Continent, and the custom is to invoice the net weight of silk according to the testing of the condition house, instead of the actual weight of the bale. It is needless to say that this system is much preferred, and is by far the safest plan to purchase by, as raw silk will absorb about 33 per cent. of its own weight in moisture, while the regular recognised weight of moisture is only 11 per cent. over its absolute dryness. It thus becomes an easy matter for unprincipled merchants to defraud the manufacturer when the silk is sold unconditioned. The same may be said, to a certain extent, of cotton, but more especially of wool. As regards adulteration with water, the safest and most satisfactory plan for all manufacturers must certainly be to purchase raw material only by "condition" weight.

LIVERPOOL COTTON BROKERS' RULES, AND COTTON SPINNERS' INTERESTS.

Cotton rings are not the only disadvantageous institutions that flourish in Liverpool in connection with the cotton trade. There are few spinners that have not at one time or another experienced the hardships inflicted by the Liverpool Brokers' Association's rules, which certainly have been constructed with a heavy bias in them against the spinner. It is rare indeed that he has the slightest chance of redress when he finds in a lot of cotton a few bales containing the sweepings of the gin-house, or whose weight is brought up to an average by chunks of wood or stone. When these or other impurities in cotton are discovered to such an extent that he deems it necessary to make a claim rather than pocket the loss, the merchant against whom the claim is made very often prefers to resist it as the easiest way of disposing thereof. Having thus decided, he only needs to say he refuses it, and if the spinner press his demand, by the rules of the Association, the parties are then compelled to transfer it to arbitrators, and in the event of these disagreeing, to the arbitrament of an umpire. It is a matter of common notoriety that a spinner has only the smallest chance of winning his case in these references, and that in point of fact not more than one case in ten is thus won. The rules and regulations made for governing these references, and the principles on which they are worked, are in flagrant violation of the common law of the country. It is one of the oldest principles of this section of our laws, that when a person buys an article he is entitled to receive that, and not some substitute or other, such as is too often found in cotton bales. Bricks, stones, pecks of gin dust, water, wood, iron, dead monkeys, etc.—we don't know whether there has not actually been a dead nigger discovered—all these, and more things than we can enumerate, have been found in unpacking cotton bales. In cases of this kind it is highly desirable that demands should be made and insisted upon for allowances, and as long as the rules of the Association carry their existing bias, redress, when refused, should be sought by an appeal to the law. With proper book-keeping there ought to be no difficulty in the merchant charging such claims back to their origin, and so securing justice for the spinner. But whether difficulty exist or not it ought to be done, for certainly he can charge the loss back upon the person or firm from whom he purchased it and the latter can again pass it on. By a process of this kind the offender will be found. If any person in the series finds himself unable to pass the claim onward, let him bear the loss himself as a punishment for conducting his business in such a loose manner. But all

the matters used as adulterants referred to above are harmless compared to that in a case which has just been brought under our notice. A well-known spinner informs us that in a lot of 50 bales of cotton he has found four very highly charged with paraffin oil. This oil being a clear oil leaves no stain, but the cotton smelt so strongly that it led to a close examination, which revealed the fact we have stated. It is immaterial from the spinner's point of view whether the cotton was purposely or accidentally charged with this material, whether it was put into the bales or spilt upon them in the ship's hold during transit: he did not buy a mixture of cotton and paraffin, and therefore is entitled to return it. We should hold it to be the extremest of folly to attempt to work such cotton, as it cannot, in the case of such a volatile material, be free from great risk of starting a fire. The spinner referred to represented these facts to the merchant, and was met with the usual refusal to receive the cotton back or make the necessary allowance, on the ground that it was not saturated to such a degree as to entitle him to ask for any. We really wonder what those good friends of the cotton trade—the merchants—will say next. It is quite probable that something more will be heard of the matter in a short time.

THE WEAVING OF BRADFORD GOODS IN LANCASHIRE.

The name of Bradford (Yorkshire) has come to be identified with a particular kind of textile manufacture, which originated 60 or 70 years ago. Formerly it was almost solely devoted to the worsted trade, but at about the time referred to cotton warps were introduced, the filling being as before—worsted. The article made thus was a union of wool (in the form of worsted) and cotton. This junction produced a very seemly and cheap fabric which "took the market," and it is mainly on this class of goods that the prosperity and growth of Bradford has been founded. The border-lands between the counties of York and Lancaster are the border-lands between the cotton and worsted industries, and especially is this the case in the North-East Lancashire districts of the Colne Valley. Colne, Nelson, and Barrowford have always as it were had two strings to their bow—two lovers on which to lavish their affection, inclining to the one that could treat them best. This alternation has not been entirely advantageous to the operatives, because of its necessitating the use of different standards of payment. The Bradford standard is very properly different from that of the cotton trade, as the weaving of worsteds is not nearly so easy, cleanly, or healthy as that of cotton. Besides this, fabrics of worsteds require much more care and skill in weaving, such weavers' faults as may be passed in many cotton goods being entirely inadmissible in worsteds or unions of worsted and cotton. Some trouble on the wages question has arisen in the district apparently from the fact that some manufacturers are weaving Bradford goods and paying for them on the basis of the cotton trade list, otherwise we cannot conceive how one firm should be paying 4s. 1½d. for weaving a piece of cloth that a neighbouring firm is getting woven for 3s. 6d. Such discrepancies in the wages rate, we understand, have prevailed for a considerable time, but a crisis has been brought about by Messrs. Ecroyd and Sons, Loweshaye Mills, Nelson, having recently given notice that they would reduce their prices from the higher figure above mentioned to the lower, that being what other firms were paying. The weavers at last have taken alarm and placed

the matter in the hands of the Northern Counties Weavers' Association, the officials of which on Wednesday waited upon Messrs. Ecroyd with the result that they secured a mitigation of the intended reduction, the firm having agreed, it is reported, to be content with bringing the price down to 3s. 10½d. We believe the fabric in question is a sateen. Well, sateens are sateens, but may be all worsted, cotton and worsted, or all cotton, and we should expect a different standard to govern the fabric in each case. If this is not understood and acted upon it is quite time in the interests of both the employers and employed that it was properly and equitably adjusted, in order to prevent disputes injurious to both parties and disastrous to the districts affected. The local Weavers' Association of Colne and Nelson, we understand, have agreed to co-operate in the endeavour to obtain a standard list for these fabrics in their districts.

KIDDERMINSTER MANUFACTURERS AND THE WHOLESALE HOUSES.

The Kidderminster *Shuttle*, as the local organ of the Kidderminster carpet trade, is naturally wrath with us for having written in the strain we did when discussing the above subject a fortnight ago. Our contemporary should remember in the first place that *The Textile Mercury* primarily caters for the interests of manufacturers, and, therefore, had no motive except desire for a spreading of the truth, in pointing out the folly of arousing the antagonism of the wholesale distributors, whose vast wealth and honourable business methods cannot be disregarded. We adhere to our original statements on the subject, and with reference to the question of facilities for distribution would point out that many of the smaller carpet manufacturers now feel severely the disadvantages of maintaining an expensive staff of travellers for the purpose of keeping together a business, the turnover of which is out of all proportion to the outlay involved. There are manufacturers in this district who have gone direct before now, and firms too whose capital exceeds that of any in Kidderminster. But the results have proved so disastrous that they have hastened to curtail the expenditure and disappointment which follows in dealing with a host of small drapers all over the country, and they have been glad to sell again to the wholesale, who pay promptly, do not figure in the *Gazette*, and take all risks of the bad debts which are constantly made by those having contact with the shopkeeper.

Articles.

SOME DOINGS AT THE TRADES-UNION CONGRESS.

The flood of comment and discussion that has taken place during the week upon the doings of the Trades-Union Congress obviates the necessity of any lengthened observations from us. The great features of the meeting were the appearance of the Socialist contingent, mainly from London, and the manner in which it trampled upon the best traditions of the Congress, setting aside precedents, rules, and regulations, and clamouring down the most experienced members. Unfortunately the selection of the president was not a good one, it being clearly seen during the reading of the Parliamentary Committee's report that he was not strong enough for the position. The sentiments enunciated in his inflated and turgid address shewed him as sympathising with the advanced section, which seemed thereupon to have con-

cluded that it was secure of his favour for the proceedings of the week. This was manifested upon a subsequent occasion when the vice-president ventured to make a suggestion to the bewildered president. Mr. Broadhurst, M.P., the secretary, read the report of the Parliamentary Committee. This document is always an important one, as it summarizes the doings of what is practically the Executive or Administration of the Labour Parliament. The report touched upon the subject of Employers' Liability, the action of the Government, and the opposition of the Committee on account of dissatisfaction with the provisions of the Bill introduced by the former. The interests of seamen were referred to in the notice taken of the new law dealing with overloading, which it was asserted the Committee had materially assisted to place upon the Statute Book. The Factory Act Amendment Bill was then referred to, and also the conferences between their representatives and those of the employers, which from their point of view had been fruitless, and, they were afraid, left them no course open but to introduce a Bill drafted on their own lines. We have discussed this Bill *seriatim* already, and therefore need not further refer to it beyond stating that their proposals on the subject are little less absurd in relation to the principles of equity and justice than were the proposals of the Socialists in the Congress in relation to the true principles of political economy. They will be far wiser to drop the Bill altogether if they cannot accept the amendments proposed by their employers. The Engine-mens' Certificate Bill and the Merchandise Marks Acts Amendment Bill were next briefly referred to, and the report proceeded to deal with the proposal for an Eight Hours Bill for miners, which the preceding Congress had instructed the Committee to prepare, but which it had shelved. It was for this offence the Committee was bitterly attacked when the report came to be discussed the following day. The remainder of the subjects were of the usual type, most of them being standing dishes of the Congress. The reference to the Berlin Labour Conference is an exception to this remark. From the statement made it appears that the trio of B's selected to represent English labour, Messrs. Burt, Burnett, and Birtwistle, were suggested to the Government by Mr. Broadhurst. Whilst deprecating the attachment of too much importance to this meeting, the report expressed the belief that results fruitful of good would flow from it. The death of Mr. Crawford, M.P., was then referred to, and the question of picketing touched upon, averment being made that if conducted peaceably it was perfectly legal, as was laid down in the judgment of Mr. Justice Cave at the last Bristol Spring Assizes. This question ignores the difficulty in the way, which we have sufficiently pointed out when discussing the subject in recent issues of this journal. The report then concluded with some general remarks upon the progress of the principles of trades-unionism.

Next day the proceedings opened with the President's address, which we may pass over with the statement that it was of the "advanced" order, and contained all the typical weaknesses and faults of the Socialist programme. This concluded, the real proceedings commenced with a debate upon the Committee's report, which soon became exceedingly stormy—a forecast indeed of the whole week's proceedings. The chief ground of attack was based upon the Committee's action in shelving the instruction of the Congress to prepare an Eight Hours Bill for the mining interests. Great excitement was

soon developed. The aggressive movement was not skilfully conducted; wild and reckless statements were made in abundance, and the lie direct was given repeatedly. Mr. Broadhurst had not a difficult task in crushing the attack in reply. The amendment to the report was defeated by 258 votes to 92. Relating to employers' liability a resolution was passed that "no measure of legislation will be satisfactory to the industrial classes which does not abolish the law of common employment, restrain employers from contracting out of their liability, and remove all limitation to the amount of compensation to workmen," and the Committee were by the resolution instructed to prepare a Bill embracing these views. This was followed by a resolution urging that workmen should be summoned on juries and be paid for the loss of wages involved by their attendance. We presume it is perfectly right and proper in the view of these delegates that all other persons than the so-called working men should give their time as jurors for nothing. The next resolution was intended to compel the sweeping away of every obstacle to the march of working men to the House of Commons, boards of guardians, and other governing bodies, and to pay such excellent servants for their devotion to the public interest. The Socialist section, in the persons of Mr. Macdonald, and Mr. John Burns, of London, moved an addendum which declared that no candidates for Parliament should receive the support of the working classes unless they declared favourably on the nationalisation of land, shipping, railways, and all other means of production. In seconding this precious rigmarole, Mr. Burns made a savage attack upon the labour representatives in Parliament, which Mr. Wilson M.P. characterised as an outrage and an insult, declaring the statements it contained to be "foul lies." Much more irrelevant matter was introduced and strong language used, when the closure was applied, and the addition to the resolution defeated by 263 votes to 55.

It is quite useless to follow the proceedings further, as no deliberation could be said to be given to any submitted proposal. The public press, though giving copious space to its proceedings, charitably drew a veil over most of

the scenes that occurred, not even giving an indication of half of them. It ought to be a lesson to the organizations connected with our skilled labour systems and highest industries that their interests will be greatly endangered by association with the perfectly unskilled workers' associations, of which dockers, gas-stokers, firewood cutters, and others of the like are types. It is really amusing to see the airs of importance such classes of workers have assumed, it being often expressed and almost everywhere implied in their actions that they form the apex and crown of our industrial system, and that their representatives are "men of light and leading" whose equals are not to be found. We are pleased to think that the representatives of the cotton industry have come to our conclusion, and that they have given emphatic expression to their opinion by and through the action of Mr. Birtwistle in seceding from the Parliamentary Committee. It only remains for them to clear themselves of the taint of the same false views that has been visible of late in many of their proceedings, which has no doubt arisen from the excitement of the past year or two that has attended all labour movements.

The importance of care in the rearing of the silk-worm is shown by the following anecdote. In a village in Syria, a quantity of French eggs was divided between the peasants and some nuns, who are engaged in silk-spinning. The eggs entrusted to the peasants, which were no doubt neglected, all failed; those received by the nuns yielded splendid results. Yet the eggs were all of the same sort; they were all treated in the same climate, and fed on the same kind of leaf. The moral is plainly this, that it is not enough to improve the races of the silk-worm; that it is equally necessary to improve methods of rearing by making the rearers understand that silk-worms are delicate creatures, which need constant care.

Designing.

NEW DESIGNS.

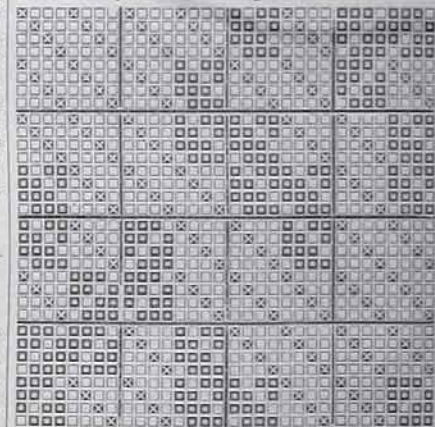
DRESS FABRICS.

Figure 24, given last week as an example of the "sateen" arrangement of figures, will make a very useful pattern developed in various ways. Design 177 is a portion of this figure developed for utilisation as a dress fabric. It will be noticed at once that simply the 5-end sateen

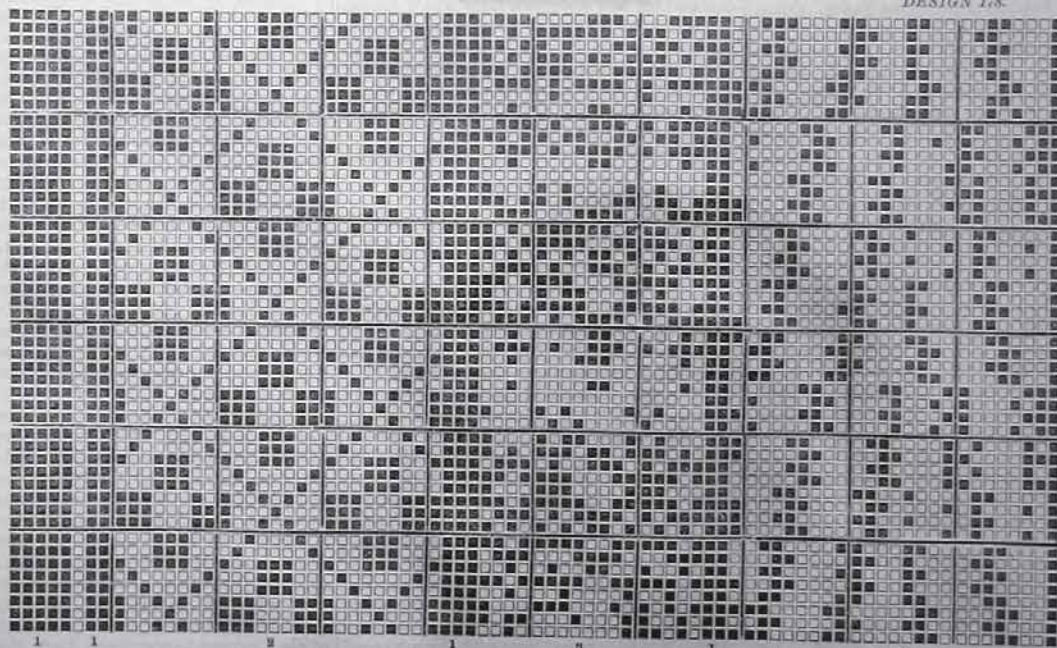
warp and weft face is used throughout. In setting such a cloth care must be taken to give the weft (which should be given through the warp) sufficient preponderance to show up a clear, bright figure, otherwise an unsatisfactory result will be obtained. Fine botany yarns should be used. Before leaving this figure it should be noted that other figures of a very different kind may be reduced and applied similarly to this. We would recommend readers to attempt something of this kind.

INDIAN DHOOTIE.

We give another design of an Indian dhotie bought in the bazaar at Allahabad; we cannot give the place where woven with any degree of accuracy. Suffice it to say that this pattern is a most pleasing variety; it appeals to the sense of beauty, is attractive and gratifying to the eye, and it is humiliating that to attain these very results we moderns are compelled to recur to the works of the ancient designers. The length of this cloth is 3yds. 27in.; width, 1yd. 11in.; weight, 12oz. The figures given at the bottom of the design indicate the colours. No. 1 is a rich deep tone of purple; No. 2, all the light type green, the dark type red; No. 3, light type fawn, dark type chocolate; No. 4, light type mid blue, dark type gold. The centre of the cloth is bleached and of very light texture. Probably not more than 30 by 30 per inch of 40's warp and weft. It might easily be termed an ornamental muslin scarf, and one of exceptional beauty in colour arrangement.



DESIGN 178.



INDIAN DHOOTIE DESIGN.

Machinery and Appliances.

TAPESTRY CARPET PRINTING MACHINE.

In a preliminary announcement which appeared in our columns last week, details were promised concerning a new machine which in all probability will revolutionise certain sections of the carpet trade. The invention, which is described below, is due to the ingenuity of an American, Mr. James Dunlap, of Philadelphia, who has thus added another to the long series of successes achieved by his countrymen in connection with the creation of and improvement in appliances for the rapid and economical performances of the complicated processes involved in the manufacture of carpets as carried on at the present day. The invention refers to the printing of tapestries, which has exercised the minds of those engaged in the industry for over half a century. Mr. Dunlap's latest arrangement marks the present limit in the advances made since William Whytock, the Scotchman, patented his immense drum, under which, as it revolved, little transverse railways passed to and fro, the yarns being immersed in different dyes as required. This process down to this day forms the basis of the methods employed in the dyeing of tapestry carpet yarns, and Messrs. Crossley Bros., of Halifax, bought Whytock's rights immediately the inventor communicated to them the result of his labours. From the printing of yarns to the printing of carpets was an advance which those interested in the business have long yearned to accomplish, and the mind of the ingenious American early commenced to study the problem involved in the discovery of such a method. Mr. John Crossley, of New York, if not the first, was at any rate one of the very earliest to make an attempt at printing tapestry carpets, and after infinite labour and the expenditure of large sums of money he succeeded in producing a fabric which, although not so attractive as that turned out by Mr. Dunlap's machine, was still a great triumph in its way. It was only in June last that the patent of the Crossley's, of New York, expired, so that not much time has been wasted in improving upon it. Before going into details it may be as well to point out, in order that the difficulties now surmounted may be duly appreciated that the perfect results achieved in the printing of cotton silk and other textiles are much more easy of attainment than where the impression of coloured designs upon such an irregular and absorbent fibre as wool is concerned. It is essential in any process intended to achieve such an object that the yarns should be thoroughly saturated with the dye, just as though they had been saturated by immersion in a vat. Attempts to print carpets by the hand block method have been dismal failures, and the goods thus produced, like the common felts to be seen in the home-trade houses of Manchester to-day, are only suitable for a low-class trade. The remarkable piece of mechanism invented by Mr. Dunlap, stands in a large room of his mills, and as a labour-saving appliance ranks as one of the most striking victories of mind over matter ever won. At a given signal, the beholder sees the various cylinders commence to revolve with little noise, the tapestry journeying round them and passing fully printed into a receptacle overhead ready for the subsequent pressing, rolling, and finishing necessary to convert it into a condition fit for the market. Those who have seen a wall-

paper machine turning out its work completely and swiftly will be able to form an idea of the appearance of the Dunlap machine when in motion. It will apply eight colours, and is capable of turning out 15,000 yards a day, although about 6,000 yards in from one to seven colours and in any number of combinations thereof will represent the average work that can be produced comfortably. Five men only are required to attend to the machine, the copper cylinders of which are deeply engraved. There is no overlapping, the fabric being clearly printed, and as tapestry worsted is very receptive to aniline dyes and the pressure of the cylinders is perfectly even, the shades which can be obtained of the most delicate character, such as salmon, ecru and peach blow, are perfectly fast—as fast, in fact, as the yarn-dyed tapestries produced by Whytock's process. Mr. Dunlap has proved that his dyes are permanent by subjecting some of the pieces to a scouring process, using a strong mill soap, and rubbing the face of the carpet thoroughly. The test left no traces behind. Imitations of body Brussels can be turned out by the machine, and crimsons and tapestry velvets of the most satisfactory kind are also included amongst the work which it can perform to perfection. If necessary, the colours can be made to penetrate to the back of the fabric. A more detailed description, we hope, will appear in these columns at an early date.

THE DECORICATION OF FIBROUS PLANTS.—A new method of decorticating reha, hemp, and other fibrous plants has lately been introduced by a Leeds manufacturer, and it will probably attract considerable attention from those interested in the use of vegetable fibres. The process is the invention of Mr. Raabe, of No. 22, Warwick-place, Leeds. Hitherto reha fibres have been prepared for spinning purposes by means of chemical treatment, but it is held that this mode of treatment, besides greatly increasing the cost of production, diminishes the value and usefulness of the fibre, and as a consequence the reha industry has not made much headway. Mr. Raabe's invention consists of a set of machinery in three sections, the first of which gradually breaks the wooden portions of the reha stalks, separating them from the fibrous material, while the second and third gradually remove the bark and at the same time divide and soften the material itself. The fibre thus produced can be subjected to the hackling or combing process without further treatment. Specimens of fibre produced by the machinery have been shewn to us, and they afford a very interesting proof of the decorticating properties of the new invention. Several scientific and manufacturing experts have inspected the new process, and their opinion goes to show that a useful filip will be given to the reha industry and to the use of similar fibres by means of the Raabe machine.—*Yorkshire Post.*

Bleaching, Dyeing, Printing, etc.

DYEING WOOL IN SLIVER OR HANK.

A correspondent of a German contemporary writes on this matter as follows:—“Every kind of dyeing has its advantages as well as its disadvantages. The dyeing of sliver has doubtless many of those advantages which the dyeing of loose wool may justly claim, although sliver cannot be considered as equal to loose wool for dyeing, for having already passed through several preparatory stages it must be regarded as a kind of half-manufactured article. It is asserted by some that the colour of the dyed sliver bleeds more easily than that dyed in the hank; but such has not been my experience. At any rate if this should occur, the cause of the bleeding of the colour should not be attributed to the fact that it was dyed in the sliver, but that the process of dyeing was itself at fault, or the quality of dyestuff used was inferior. Long experience has taught me that dyed sliver has a

spinning capacity inferior to undyed sliver, provided the sliver be from the same grade of wool. The difference, even for medium colours, amounts to about two numbers, and for heavier ones increases to four. Thus, for instance, sliver from a certain grade of wool when undyed can be spun to about No. 50's or 52's white, but in a dyed condition it cannot be made to exceed 48's. This is an experience familiar to woollen manufacturers in spinning dyed and white wool of light quality. Another conclusion to be drawn from this is that a thread from dyed sliver becomes finer for the same number than one spun from the undyed, and is also inferior both in quality and smoothness, always assuming that the same grade of wool be used. In order, therefore, to obtain a yarn of the same fineness and quality from dyed sliver, a better quality of wool must be employed than when simply spinning undyed wools. Undyed wool sliver makes a better material for warp, and dyed sliver is better suited for weft.”

DYEING OF MIXED SILK AND WOOL GOODS.

When wool is boiled in a solution of bichromate of potash, the wool absorbs part of the chromic acid from the bichromate solution, while the bath contains the yellow or neutral chromate of potash, the wool acquiring a yellow tinge. When the whole of the bichromate has thus been converted into the yellow chromate the solution loses its mordanting power, but the addition of sulphuric acid to the bath restores this power by liberating some chromic acid.

If silk be immersed in a similar bath of bichromate, a very different result is obtained—the silk is not mordanted. Therefore, if a mixed silk and wool fabric be boiled in a bath of bichromate, the wool is mordanted while the silk remains unaffected, and if the fabric be immersed afterwards in a bath of logwood, the wool is dyed black while the silk simply takes a reddish colour, as if it had been immersed in a bath of logwood simply; and if the fabric be soaped and given a passage through a weak bath of hypochlorite of soda the wool is dyed black and the silk is left white. This difference in the properties of the two fibres makes it very difficult to obtain even self colours on mixed fabrics, especially from the adjective colours that require mordants to develop them; thus it is difficult to get an even black from logwood. Under these circumstances it is best to fall back on those coal-tar colours that dye both fibres equally well. Thus, for blue, the alkaline blues are preferable to indigo extract, because their affinity for both fibres is more nearly equal. For black, naphthol black with Indian yellow gives the best results on the mixed fabrics; without the yellow, navy blues can be obtained with ease, this colouring matter giving exactly the same shade on both fibres, and the shades are solid and very resistant to light. Naphthol green is also equally serviceable for solid shades of green, and by admixture with the blue a variety of useful shades can be obtained.

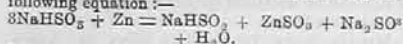
DIOXYNAPHTHALENE $C_{10}H_6(OH)_2$ is a most valuable producer of colouring matters, especially for wool dyeing. Of this body there are known some 13 isomers, that is, compounds having exactly the same chemical composition and similar chemical relationships, but rather different properties, which differences may in the case of colouring matters shew themselves in differences of shade. Not all these are of technical value. By treating these dioxynaphthalenes with nitrous acid they are converted into nitroso-dioxynaphthalenes $C_{10}H_6NO(OH)_2$, which are adjective colouring matters, i.e., capable of dyeing mordanted fibres. The 1-5 nitroso compound is already in the market, under the name of dioxine, and recently the 1-4 nitroso compound has been patented. The latter dyes brown to black colours on wool mordanted with chrome; or it can be printed on cotton, using acetate of chrome as a fixer. These nitroso-dioxynaphthalenes are insoluble in water, and they are usually sent out in the form of pastes.

HYDROSULPHITE OF SODA AS A BLEACHING AGENT.

M. Gaston Dommergue, a French chemist, has recently carried out a series of experiments with a view to testing the efficiency of sodium hydrosulphite as a bleaching agent for textile fibres of animal origin, such as wool and silk. Formerly sulphurous acid was employed for this purpose, but its use is unsatisfactory if it is required to subsequently dye the material, as the sulphurous acid acts as a powerful reducing agent on most colouring matters. Hydrogen peroxide has latterly been used with some success, and ozone is now being proposed for this purpose.

The author has endeavoured to overcome the difficulties attending the use of sulphurous acid by employing sodium hydrosulphite, a compound first obtained by Schützenberger, and hitherto of little industrial importance. Since 1833, when the author made the first trials with this material, very excellent results have been obtained both on wool and silk, and fibres bleached in this way have been dyed in the ordinary way, and given satisfaction to the buyers.

The hydrosulphite is prepared industrially in a similar manner to that first described by Schützenberger. The following proportions are those which are found to give the best results. In a large tank of 500 litres capacity about 800 litres of bisulphite of soda liquor of 35° to 40° B. are added, and then powdered zinc is thrown on to the surface of the liquid. The zinc gradually dissolves in the liquid without the evolution of any gas, and in order to keep the reaction under control a current of water circulates through tubes placed in the vessel. The reaction is complete in about an hour, and the mixture is allowed to settle for twelve hours, when crystals of the double sulphite of zinc and soda separate out from the liquid, which forms the bleaching liquor employed. The reaction is expressed by the following equation:—



In contact with air the hydrosulphite is readily converted into bisulphite of soda with elevation of temperature:—



It is therefore necessary to use the liquor as soon as it is formed, or take precautions to ensure it not being in contact with the air.

The bleaching operation is conducted in a larger bath of twice the capacity of the preparation tank, and to it is added the liquor and an equal volume of water, and the material to be bleached is then added after it has been thoroughly cleansed from grease, etc., by treatment with carbonate of soda and soap in the ordinary way. In about six hours the bleaching is finished, and the material is passed through rollers to press out the bleaching liquor, which can be used for another operation until spent. The bleached goods must at once be thoroughly rinsed with water so as to remove all traces of any unaltered hydrosulphite, as otherwise the oxidation of this compound on exposure to the air in drying evolves sufficient heat to considerably alter the texture of the material.

Sometimes the bleached material has subsequently to be washed in a bath of dilute hydrochloric acid to remove stains produced by the presence of some of the double sulphite of zinc and soda being left in the liquid. This mishap can usually be avoided by allowing the liquor to settle and cool for a sufficient time before transferring from the preparation tank.

The author states that the process is an economical one for all fancy articles, and adds that the amount of zinc employed is so small that its cost is not any drawback to an extensive use of the process.—*Moniteur Scientifique.*

CACHOU DE LAVAL.

The artificial colouring matter familiar to most dyers under the name of Cachou de Laval is now used in most dye-houses, especially in cotton dyeing, as a bottom for the so-called mode colours. These colours being fast to acids and alkalis, and the process of producing a variety of shades being extremely simple, as is the case in the application of all direct-colouring matters, R. Zepetit (writing in the *Farber Zeitung*) is of opinion that further particulars about this body would be of interest to dyers, especially as the literature concerning it has been rather scanty.

Cachou de Laval was discovered in 1873 by Croissant and Bretonnière, and was prepared a few years later on a large scale by Poirrier, the well-known colour manufacturer of St. Denis, near Paris, by melting certain organic substances such as sawdust, bran, etc., together with sulphide of sodium. In Germany it was manufactured for some time at Tilsit. Cellulose or oxy-cellulose, or bodies

containing these, such as sawdust, etc., is the only rational material for the preparation of Cachou de Laval. This is perhaps the only example as yet where the products of decomposition—the cellulose—are able to produce colouring matters; while, on the contrary, the formation of cellulose in vegetable life is so frequently accompanied by that of the most valuable colouring matters. It is, however, very difficult, in the preparation of Cachou de Laval, to obtain products of uniform properties, even by observing strictly the same conditions.

About the chemical nature of this colouring matter almost nothing is known, for the name of mercapto acid, which has been given to it, merely reminds us of the presence of sulphur in the molecule, and of the property of producing more or less soluble compounds with metallic salts. In its behaviour, Cachou de Laval resembles that of a reduced colouring matter, the bath forming a kind of vat, as in the case of indigo, with the difference, however, that its solutions are intensely dark green. This colour is also shown by the cotton during the dyeing, the colouring matter becoming insoluble, and in this form remaining fixed on the fibre. If a current of air be made to pass through solutions of Cachou de Laval, or if such solutions are simply left exposed to the air for some time, sulphur is separated and they gradually turn into a brownish grey, while part of the colouring matter remains suspended in a free state of division. If the attempt be made to dye cotton in such solutions, the cotton, indeed, assumes a brown colour, but this is not fast, and is almost entirely removed by washing. It is therefore not advisable to keep solutions of Cachou de Laval for further use; fresh solutions have to be prepared each time before dyeing. It is, moreover, of importance to protect the colouring matter from moisture by keeping it in well closed boxes, as it greedily absorbs water and air, and thus becomes insoluble by oxidation.

If acids be added to solutions of Cachou de Laval, sulphuretted hydrogen gas is developed, and the colouring matter is separated as a completely insoluble precipitate, together with sulphur. With metallic salts, Cachou de Laval forms mostly grey or dark brown precipitates. These properties make it possible to fix the colouring matter better on the fibre after dyeing, especially if the acid or the salt—such as nitric acid, potassium bichromate, nitrate of iron, permanganate of potash, etc.—has a simultaneous oxidising effect.

Unfortunately, the different mordants do not produce a great variety of shades, as is the case with the adjective or polygenetic colouring matters. Dilute nitric acid furnishes a more vivid tone with a tinge of yellow; bichromate acts similarly, the colour becoming lighter, especially when heated. Copper sulphate produces a decidedly pure grey colour, and permanganate a fine brown, by the separation of oxide of manganese. It is optional either to top the cachou bottom with natural colouring matters and mordants, as well as with artificial colouring matters, or at once to add log-wood, fustic, quercitron extract, or ordinary catechu, to the Cachou de Laval in the first bath, and afterwards to draw the material through metallic mordants, which would limit the dyeing to two baths.

The well-known property of Cachou de Laval of attracting basic colouring matters, as is the case with the direct colouring matters for cotton, is of interest, but the shades thus obtained have little fastness to soap. If colours fast to washing are required, the preference will be given to chrysamine, chrysophenin, benzoaurin, etc., so much the more as these substances may be added to the Cachou de Laval bath, whilst basic colouring matters are precipitated by them.

For wool dyeing Cachou de Laval is quite useless. Even if the wool is previously mordanted with bichromate or iron alum, or if the material, after having been filled with the colouring matter, in the cachou bath, is drawn through bichromate, copper sulphate and other mordants, colours are obtained which are quite loose to soap and milling.

On the other hand the fastness of cachou on cotton is remarkable, and it stands in this respect on a level with the alizarin colours. By acids the shades are scarcely altered at all, and they lose nothing whatever by boiling in a soda solution of 1.5° Tw., the colours, especially if fixed with chrome, suffer very little. Cold solutions of chloride of lime of 1.5° Tw., also have little action on them. Alkaline solutions of hydrogen peroxide cause a pretty rapid decolorisation. The fastness of cachou to air and light is sufficient in every respect for the requirements of practice, the colours scarcely turning paler to a perceptible degree, even if exposed for a month in summer to the sunlight.

In the practical application of cachou the author finds that soft water is to be preferred, and that very hard water had best be first heated to about 60° C., with the addition of a little soda, especially for

piece dyeing. The colouring matter has to be dissolved in hot water, and as a precaution should be strained into the dye bath. The bath should be kept strong enough just to answer the purpose. For 100 lb. cotton use about 180–200 gallons of water, the material having previously been cleaned by boiling with or without soda. It is entered at about 30° C., and moved at first rather rapidly in the dye vat. The temperature is raised in about an hour and a quarter to from 72–80° C., and ten per cent. of common salt is added to the bath. After a good stirring the material is entered again, and worked for another ½ to ¾ hour until the bath is exhausted, or the green colour changes to brown. Then follows good rinsing and drying.

For yellowish olive shades, fustic extract, chrysamine, etc., are added to the dye bath. If fustic extract has been employed the goods must be rinsed and worked for half an hour through hot bichromate. If the colour is not required to be fast to washing, a grounding is given with cachou, which is topped with auramine. For more greenish shades some methylene blue may be added to the auramine. If the olive shades be drawn through hot copper sulphate a series of fast and very beautiful brown colours are obtained. Gray shades of all kinds may be obtained by the application of very little benzoaurin, congo corinth, etc.; brown shades, either as already mentioned, or by topping with benzo brown, Bismarck brown, or chrysidine with or without some safranin.

HANK-DYEING machines, in which the hanks are hung on revolving rollers, are very common, and are simple and tolerably efficient in use. Generally the rollers are made solid, but Messrs. Ashworth, Scholes, and Hunt have patented an improvement wherein the rollers are made skeleton wise of three metal rods projecting from a disc, by which means, it is claimed, a better grip on the hanks is obtained, and a more even colour can be got.

ASHWORTH'S new patent vat for dissolving indigo is made as follows:—150 lb. sodium bisulphite (containing about 33% of Na_2SO_3) are taken and mixed with 8 lb. zinc dust until the reduction is complete. The liquor is separated from the precipitate by filtration or decantation in suitable vessels, and to the solution thus obtained a sufficient quantity of sodium sulphide is added to precipitate all the zinc as zinc sulphide. The liquid is filtered or separated in any suitable manner, and forms after the addition of a little caustic soda an excellent vat for the solution of indigo.

SOME NEW SIZES for fixing colours upon fabrics by printing have been patented by Mr. Richard Leigh, of Farnworth. Rosin is dissolved in alkali, and this is mixed with a solution of casein, gum, glue, or starch, which again is mixed as required with the colour, and a chrome salt to form the printing colour; and after printing, the goods are passed over a hot surface. The process is open to modification; a printing colour, for instance, is made with an aqueous solution of gum, etc., mixing with chrome salt, the pigment, and powdered rosin. After printing, the goods, as before, are passed over a hot surface, which melts the rosin, and thus fixes the colour upon the fabric; or the aqueous colour and size can be printed, and powdered rosin dusted on while the colour is still wet.

OZONIN.—Under this name there has been patented in this country a new bleaching compound, formed of

22	parts hydrate of potash,
128½	parts water,
125	parts colophony,
150	parts turpentine,
128½	parts peroxide of hydrogen.

The water, colophony, and potash are boiled together, then the turpentine is stirred in, and lastly the peroxide of hydrogen is added. This new product is said to possess great bleaching properties, much superior to those of peroxide of hydrogen, or even to an emulsion made of colophony, potash, and turpentine; for instance, equal quantities of a solution of indigo, the patentee says, are bleached by 6 drops of ozonin in half an hour, by 10 drops of peroxide of hydrogen in 48 hours, and by 5 drops of the turpentine emulsion in 12 hours. One part of ozonin in 1,000 parts of water is said to give a powerful bleaching solution capable of bleaching all kinds of textile fabrics and other products without attacking the fibre.

Foreign Correspondence.

TEXTILE MATTERS IN THE UNITED STATES.

NEW YORK, AUGUST 30TH.

THE TARIFF BILL.—DEMAND FOR AUTUMN DRESS GOODS.—FAST BLACK HOSIERY STILL POPULAR.—PROSPECTS IN THE SOUTH.—KERR'S NEW THREAD MILL.

The long-drawn chatter that has been proceeding in Congress for weeks will shortly cease, for by the time this letter is in print the vote on the McKinley Bill will have been taken. The threat was made the other day by certain Southern Republicans that if the Senate refused to deal with the Force Bill they will wreck the Tariff Bill. It is probable, however, that the disappointed ones will not show their resentment in this way. There is not sufficient unanimity amongst the Southern Republican Congressmen to enable the malcontents to carry their ideas into practice. Senator Gorman, chairman of the democratic caucus, says that no agreement has been reached respecting the date when a vote shall be taken on the Tariff Bill. The debate, he says, will continue in pursuance of the policy adopted at the only democratic caucus held this session. When it is thought that there has been a sufficient if not a satisfactory and thorough discussion of the Tariff Bill the democrats will agree, in accordance with the custom of the Senate, to take a vote upon it. The question has been privately under consideration on both sides of the Chamber, and numerous dates suggested, but no conclusion has been reached. The proposition for a close must come, he says, from the Republicans. None has yet been received, and when it comes, it may or may not prove satisfactory in all respects.

The platform adopted by the Democrats of Indiana contains the following significant "planks":—

"We denounce the McKinley Tariff Bill as the most outrageous measure of taxation ever proposed in the American Congress. It will increase taxes upon the necessities of life and reduce taxes upon the luxuries. It will make life harder for every farmer and wage-earner in the land in order that the profits of monopolists and trusts may be swelled."

"We are rejoiced at the evidences of an awakening of the farmers of the country to the necessity for organised efforts to better their own condition, and protect themselves against unjust legislation and oppressive administration."

The autumn trade has been a notable one owing to the large demand of dress goods, plaids, stripes, and figures being the favourite effects sold. In dress prints soft-finished makes have been inquired for. Foreign hosiery in fast blacks has moved freely, and Chemnitz is sending large quantities of the goods to this side. Departures of linen buyers to Europe are being postponed until something more definite is known concerning the Tariff Bill. The talk about starting linen factories here still proceeds, but unless some one with the best of European credentials takes the matter up, those who risk their money in such schemes will probably have reason to regret the action.

The latest reports from the South confirm the previously expressed views that the cotton crop is the largest ever produced. The steady increase that has taken place in the yield during the past five years has been accompanied by a rise in values, and it is estimated that during that period the South will receive for its staple growth \$400,000,000. The prospects for the agricultural community are spoken of as being the best since the war. The tendency to boom the South and all things southern is, however, so marked that the *Charleston News and Courier* has thought it necessary to rebuke the boomers by a calm and judicial survey of the future. It points out that the manufacture of the finer grades of cotton goods is an expensive and difficult business requiring the skill acquired during generations for its perfect accomplishment. There is not a single mill in the

South that can produce cotton fabrics suitable for a lady's summer gown or man's fine shirt, or a baby's dress. If such a mill exists the *News* has not heard of it; and if such a one is projected the fact has not been published. Skilled labour, schools of art, technical institutes—all these are required before the South can compete with either Old or New England in those branches of the cotton trade that call for the highest display of brain power and mechanical skill.

The new Kerr thread mill at Fall River will have some of its machinery ready by the 15th November. The chief market for the product of the factory will, it is anticipated, be in the Southern States. The Kerrs responsible for the venture are the well-known Paisley manufacturers of that name.

Messrs. Howard and Bullough, of Accrington, have supplied the slashers for a new cotton and woolen mill at Galveston.

A *Times* telegram, dated Philadelphia, Thursday, says:—"The Tariff Bill has passed the Senate, but has not been sent to the House to-day, because it was prevented by an early adjournment, the House being without a quorum through absences. The Democrats throughout the week have been preventing business by breaking the quorum. They threaten thus to prevent the further progress of the Tariff Bill. Speaker Reed had the House promptly adjourned to-day. He is sending for the Republican absentees to insure a quorum when the Tariff Bill is considered. It is to be sent to the House to-morrow. The passage of the Tariff Bill, with the knowledge of the early date for its enforcement, caused demoralisation in Wall-street to-day, through dread of the result of an impending demand for money to meet the duties on imported goods now arriving or withdrawn from bond in anticipation of higher duties."

Reviews of Books.

All books reviewed in this column may be obtained post free at the published prices from Marsden and Co., "The Textile Mercury" office, 23, Strutt Street, Manchester.

THE RIVER IRWELL AND ITS TRIBUTARIES: A Monograph on river pollution. By G. E. and A. R. DAVIS, Analytical and Consulting Chemists, etc. Manchester: John Heywood.

In view of the utilisation of the waters of the river Irwell for the Manchester Ship Canal, this is a most timely publication. In the manufacturing districts our river systems by long-continued and persistent neglect have become simply open sewers, loaded with every imaginable impurity. The numberless streams in the watershed of the Irwell, constituting as it does the very heart of the Lancashire manufacturing area, all bring their tribute of impurity to their common receptacle, the main stream. No wonder, therefore, need be felt that its condition has so long been as offensive as it is well known to be. The heavy bills of mortality in the city and the neighbouring borough have long spoken eloquently of the fact, had there been ears willing to hear. Manchester, however, could do nothing in the way of purification when the source of pollution was far away; it has, however, neglected its duty in not seeking to obtain power to compel offenders up stream to cease their evil doings. Messrs. Davis have done a service to the community in the matter of shewing clearly where the public health is seriously imperilled and injured, as this book constitutes an impeachment of every offender in the wide area drained by the Irwell and its tributaries, and they cannot too soon set to work to remedy the matters of which complaint is made. This has now become a matter of immediate and imperative necessity that will not admit of delay without risk of the most serious dangers and consequences, both to the health of the city and the commercial success of the Ship Canal. As the authors well observe, the reach of two and a half miles of the Canal between Manchester and Barton, having a bottom width of 170 and a minimum depth of 25 feet, will become one vast settling tank, which will collect nearly the whole of the suspended matters brought down the stream. This

length of the canal will hold two and a half days' normal flow of the Irwell at Throstle Nest, and 15 days' flow in times of drought, whilst the first period is quite sufficient to enable all the suspended matter to settle out before Barton is reached. The effect of 15 days of hot weather upon the collected mud of this huge settling tank, and its consequence upon the health of the million people dwelling within an area of six miles of the Manchester Exchange, may be better imagined than described. How seriously these risks to health may jeopardise the use of the canal will also be self-evident. On these grounds we would draw the attention of our readers to the imperative necessity of commencing the process of purification immediately. It will be of no use to wait for anybody else to begin; it is inevitable that everybody must be compelled, therefore the task may as well be undertaken with a good grace as with a bad one. Of what is necessary to be done, and how to do it, this little work will give them some idea, and will place them on the track of getting all further information necessary. It ought to be in the hands of every local official having anything to do directly or indirectly with the health of the people, and of the owners of every manufactory in the watershed of the Irwell. Its contents are such as cannot be advantageously quoted, and therefore we commend its perusal at first hand strongly to everybody interested in the purification, not only of the streams with which it deals, but also those of similar ones in other districts. It is full of suggestions of value.

MR. GEO. H. HURST, F.C.S., of Greville House Analytical Laboratory, 22, Blackfriars-street, Manchester, sends us a little pamphlet, "Notes and Hints on Chemical Analysis," which can be obtained *gratis* on application at the above address.

MESSES. JOHN TULLIS AND SONS, St. Ann's Leather Works, Glasgow, send us a special edition of their useful "Guide to Belt Driving," to which is prefixed a paper on that subject by Mr. John Tullis, communicated by special request to a convention of British and Irish millers held in Glasgow. This is a very useful compilation, and is profusely illustrated.

MANCHESTER TECHNICAL SCHOOL SYLLABUS.—Any students within thirty miles of Manchester desirous of entering upon a course of technological training would do well to obtain a copy of this bulky syllabus, of the secretary, Mr. T. H. Reynolds (post free, 5d.). Its value is enhanced by an appendix, containing a list of technical works in the Manchester Corporation Library, King-street, and the library of the Technical School—a commendable idea, and one well executed.

MESSES. JOHN MUSGRAVE AND SONS, LIMITED, of the Globe Ironworks, Bolton, are issuing in book form an illustrated circular of the Globe Compound Automatic Engine, etc. It is printed in the English, German, Russian, Swedish, Italian and Spanish languages. The Globe Engine has already been described in *The Textile Mercury*, and these elegant booklets will no doubt make its merits yet more widely known. They are indeed almost *éditions de luxe*, being printed on superb paper, in elegant style, for which the printers—the Atlantic Printing Co., of Broadheath, near Manchester—well deserve a word of commendation.

FROM the Dundee and District Association for the Promotion of Technical and Commercial Education we have received a "Guide to Technical and Commercial Instruction (1890)," being a syllabus of the classes held under the auspices of the association, from which it is very evident that our Scotch friends intend to keep well to the fore industrially. In addition to commercial, engineering, architectural, and other classes, the following textile subjects are included in the scheme of instruction:—The preparation and manufacture of jute, linen, cotton, cloth, silk, and lace; also framework knitting and the bleaching and dyeing of textiles. The same Association also send us a pamphlet, "Technical Education in a Scotch Town," being an abridged report by the Association on education in Dundee and district (price 3d.). Wisdom is evidently wide awake in the Caledonian Oldham.

TEXTILE DIRECTORIES.—We have received from Mr. John Worrall, of Marlborough-street, Oldham, copies of the new editions of his Lancashire Textile Directory, and Yorkshire Textile Directory; and also pocket editions of each. It is impossible to commend these volumes too highly: they are everything that directories ought to be, while at the same time they contain nothing redundant, which is just the reverse of what may be said of nearly every other textile or commercial directory yet published, as we know from unfortunate and wide experience. While the large editions, like their predecessors, will be useful for the office, the pocket duplicates will be much appreciated by travellers and others calling upon textile firms, each containing as they do the names of spinners, manufacturers, dyers, bleachers, printers, finishers, etc., brought right up to date; and also the approximate number of their spindles and looms, and the pay-days, telegraphic addresses, and telephone numbers of the principal firms. The prices of these directories are—large edition, 5s.; pocket ditto, 5s. 6d.

Letters from our Readers.

The Editor does not necessarily endorse the opinions of his correspondents.

THE MODEL FIBRE FACTORY.

(TO THE EDITOR OF *The Textile Mercury*.)

SIR,—We have perused a copy of your excellent journal, containing extract from the *Times* relating to our undertaking. We have also to thank you for your editorial critique, which is written evidently in a spirit of perfect fairness and cannot be complained of in any way. The public should understand, however, that the institution is at present comparatively in its infancy. In order to realise our ideal it must grow by degrees, and this requires time. "That which costs no time, time soon destroys."

We quite agree with you "that the management of such a place requires a combination of skill, science, and practical knowledge not often found combined, and that the machinery needs to be of the most varied character." This is precisely the object and purpose of the undertaking. The elements for this combination we think and believe are at our immediate command.

As to the business "likely to be forthcoming," we are happy in being able already to point to a considerable pile of correspondence from many countries, and a good list of eager buyers for plant and machinery, chiefly our own designs, for the treatment of leaf and other plants on the methods we have recommended. The question of new fibres is quite a secondary consideration, there is quite enough to be done with the fibres already known. We find no lack of encouragement. Everything so far points to large commercial results in the near future.

Our main object, of course, is commercial profit for ourselves as for others who follow us, but we are certainly not oblivious of the fact that this can only be reached by bringing to bear the best scientific and mechanical skill and experience that money can command.

The institution, though it has taken the form of a limited company, is practically in the hands of a few private friends, and is not intended to be the plaything of adventurers. We are, in fact, contractors, aided by the best manufacturers to be found in any part of the world, for the supply of plant, machinery, and processes of the newest and best description for treating fibrous plants of every kind, and we are in a position, we believe, to offer the best advice and assistance in the founding and equipment of fibre factories, wherever they may be required. The field for the profitable use of such establishments is practically unlimited and the demand for them, as our correspondence shows, is very extensive and urgent. We therefore ask our critics to exercise a little patience and forbearance, being confident that any doubts or misgivings they may be troubled with will shortly be dissipated on fuller acquaintance.

In the course of a week or two we shall be better prepared to invite closer inspection, and shall be pleased to see you and give you any further information you may desire.—I am, sir, your obedient servant,

E. JOYSON,
Managing Director.
Model Fibre Factory,
Lambeth.

ANSWERS TO CORRESPONDENTS.

TOIRTO PATRONE (Italy).—There is no good technical handbook on the subject on which you inquire. A few imperfect glossaries are to be found as appendices to various works, but none of them are at all exhaustive, and only a few are correct even in their limited sphere.

X. (Heywood).—We give below a few names of Cotton Waste Dealers in the United States, but do not undertake to say whether or not they are reliable:—Adams Bros., 571, Atlantic-avenue; A. Emerson and Co., 38, Purchase-row; G. K. Goulding, 571, Atlantic-avenue; Hill and Cutler, 567, Atlantic-avenue, all in Boston, Mass.

J. K. (Rochdale).—A green on mixed and cotton wool can be most easily got with a mixture of chrysanine G (say 7 parts) and benzo-azurine G (3 parts) in a bath of Glauber's salt and acetic acid. Or the goods could be first mordanted with tannin and tartar emetic, then dyed with brilliant green in a bath very slightly acidulated with acetic acid.

COMMUNICATIONS received from C. M. and Co. (London); H. M. (Bombay); W. W. and Co. (Liverpool).

Obituary.

MR. W. L. ROYLE, MANCHESTER.

We deeply regret to announce the death of Mr. Royle, formerly managing director of the firm of J. P. Westhead and Co., Limited, of this city, with which house he had been connected for a period of forty-two years, and latterly a partner in the firm of Royle, Lowcock, and Co., Dale-street, Manchester. Mr. Royle had been ill for about six weeks, and recently his malady took a more acute form, the spine being finally attacked by that dreaded foe to human life, paralysis. Drs. Dreschfeld and Ross were in attendance upon the patient, but their efforts were unavailing, and on the morning of Thursday last one of the oldest and best known members of the dry goods trade of the country passed away. What makes Mr. Royle's loss the more heavily felt is that, in addition to the respect with which he was regarded from a business point of view, he had endeared himself in the minds of those with whom he came into contact during everyday commercial life by the uniform courtesy and kindly consideration for others which marked his every action. Present and former employees of the deceased mourn his loss, and it was easy to see by those who mixed with these people on Thursday and yesterday that their sorrow was deeply sincere. Mr. Royle entered Westhead's in a subordinate capacity, became buyer of stuffs, and finally managing director of the concern after its conversion into a limited liability company. He was married, but leaves no children.

Mr. John Tennant, who for many years was manager of the Victoria and Albert Mills, Clayton-le-Moors, and for some time was chairman of the Local Board, died on Sunday afternoon.

The death has occurred at Southport, of Mr. William Buckley, lately of Prospect, Cleckheaton, who had formerly been in business with a brother as a carpet manufacturer and spinner at Ravens-thorpe. He was twenty-eight years of age.

We regret to have to announce the death of Mr. Harry Smith, brother of Mr. Isaac Smith, head of firm of Messrs. John Smith and Sons, worsted spinners, Fieldhead Mills, Bradford, and a former partner in that concern. Mr. Smith, who was 50 years of age, was the youngest son by the first marriage of the late Mr. John Smith, of Field House, Daisy Hill, and Fieldhead Mills, Thornton-road. He was taken into partnership by his father in 1861, along with his brothers, Isaac and Benjamin. On the death of the late Mr. John Smith, in 1870, the business was continued by the three brothers until the retirement of Mr. Benjamin Smith, in 1878. For four or five years Mr. Isaac Smith and Mr. Harry Smith continued in partnership together, until the latter gentleman was compelled to relinquish all active work on account of illness. In the management of Fieldhead Mills the deceased took an active part, his natural aptitude for mechanical work being of great value. He was remarkable for a kind and genial bearing to those in his employ. He was a Liberal in politics and was attached to the Baptist interest, being a liberal supporter of the Baptist College at Manchester, in the foundation of which his father took a leading part.

News in Brief,

ENGLAND.

Ashton.

The card and blowing-room hands employed by Messrs. Hamer and Wilks, Union Mills, came out on strike on Monday. For some time dissatisfaction has prevailed at the rate of wages and the introduction of additional machines. About 400 operatives are idle.

Astley.

Mr. William Grundy has been appointed manager at Messrs. H. C. H. Arrowsmith and Co.'s, Astley Mill, over the weaving department.

Bacup.

Mr. Pearson, the new inspector, has lately been very active in this district. On Thursday of last week he had 23 summonses against one firm at Rawtonstall Court, and this will be shortly followed by another batch of summonses at the Bacup Police Court.

Blackburn.

Mr. Talbot, formerly a representative of Messrs. Dugdale and Sons, who has been away in Japan for several years, has just returned to this country.

Bolton.

The friends in Bolton of Mr. T. Horrocks, manager of the Star of India Mills and the Britannia Mills, Bombay, will be interested to learn that he has been made the recipient of several presents, consisting of handsome jewellery of the value of nearly Rs. 2,000, the articles presented on account of the Star of India Mills including a gold repeating watch and gold chain with pendant; and those presented on account of the Britannia Mills comprising a lady's watch with gold chain, three silver vases, and a ring. In addition to the above presents, Mr. K. M. Heeramaneck, on behalf of the agents of the mills (Messrs. K. M. Heeramaneck and Co.), made a special presentation, which consisted of a gold necklace, one gold locket set with brilliants, and four pieces of choice silk. Shortly afterwards Mr. Horrocks sailed for England.

Brighouse.

Just now there seems a depression in the silk trade in this district, and several of the firms are only in a moderate way for work. Especially is this the case amongst the smaller employers in the "dressing" business.

Broadbottom.

On Tuesday morning a fire broke out at the Broadbottom Mills. The company's engine and pumps were at once got to work, and a telegram was sent for the Hyde Fire Brigade. The employees meanwhile worked hard, and in half an hour subdued the flames. The damage is about £300.

Bradford.

The employees of Messrs. Henry North and Sons, Girdlington Dyeworks, Thornton-road, went to Scarborough on Saturday last for a day's excursion. The workpeople were accompanied by their employers. The trip was much enjoyed by all the party.

Messrs. Daniel Hlingworth and Sons gave the workpeople employed at Whetley Mills and Bentley's Mill, Legrams, an excursion to Morecambe on Saturday last, in honour of the approaching marriage of Mr. Harry H. Hlingworth, eldest son of Mr. Henry Hlingworth, of Lady Royde Hall. The firm provided each member who wished for one with a ticket for the Summer Gardens. The party was accompanied by the Daisy Hill Brass Band.

Burnley.

The weavers employed by Messrs. A'tham and Whitehead on Thursday evening came out on strike in consequence of a difference regarding the booking of pieces, and for not being supplied with "tally" boards.

Calverley.

A movement is on foot for establishing classes in technical and art subjects on a more favourable basis at the Mechanics' Institute. It has been suggested that classes for the teaching of wool-dyeing and other subjects should be established. The matter came up at the monthly meeting of the Board of Technical Instruction, held on Monday, Mr. Margerison presiding. A deputation representing the Mechanics' Institute and Church Institute waited upon the Board, and stated that it was their intention to establish joint classes for the tuition of technical and art subjects, and asked the Board to support them in their application to the County Council for a share of the grant made to that body under the Local Taxation (Customs and Excise) Act, 1890. The Chairman, on behalf of the Board,

stated that they were glad to see that a movement was being made in this direction, and assured them of the willingness of the Board to assist the movement in any way within their power. The chairman was afterwards authorised to affix the seal of the Board or to sign his name to a memorial to be drawn up for the purpose.

Chorley.

Mr. J. N. Boothman has given an order for furnishing his new shed at Whittle with from 800 to 1,200 looms and all preparation to Messrs. Willan and Mills, Blackburn.

Church.

The Albion Mill Company, Church, has awarded an order for 500 looms to Messrs. Willan and Mills. The latter firm are also just commencing delivery of 600 looms to Messrs. John Bury and Company, Church.

At the Church Police Court, on Thursday, Messrs. James Booth and George Thomas Collings, Three Brooks Mill, Oswaldtwistle, were summoned for running six minutes' overtime. Mr. T. J. Birtwistle, factory inspector, said that on the 13th August, he entered the defendants' mill at 5.36 in the afternoon, six minutes past stopping time. He found the engine at work and a number of women and children working. He took the names of 10 women, and there were about 40 others at work in the mill. Mr. W. J. Bury, manager at the mill, admitted running overtime, but said the defendants had no intention of violating the Factory Act. The engineer was busy with his fires at 5.30, and did not notice the time until it was three minutes past by his watch, and he was just going to the engine to stop it when Mr. Birtwistle came. The engineer had put his watch right by the station clock the previous day, and he was so confident he had the right time that he accompanied the inspector to the station, where the watch was found to be two minutes wrong. Mr. Birtwistle said the engineer was going into the engine-house when he made his appearance. Defendants were fined £3 and costs in five cases, and in the other five ordered to pay costs.—The Commercial Mill Company, Clayton-le-Moors, were summoned for a similar offence. Mr. Birtwistle said that on Wednesday afternoon, September 3rd, he visited the defendants' mill at 5.40 and found the engine running and a number of women and children at work. He took the names of ten women. The manager of the mill pleaded that it was very difficult to keep the exact time in an out-of-the-way place like Clayton-le-Moors. There was no public clock, and they had to go to Accrington for the time. Their engineer went by the whistles of surrounding works, but on the day in question he must have missed hearing them. The magistrates imposed a fine of £3 and costs in each of six cases, and costs in the remaining four.

Cleckheaton.

Mr. Henry Heaton, flannel manufacturer, who carried on business at West End Mills, died on Sunday morning after a short illness. He leaves a son who was associated with him in business, the firm trading as Henry Heaton and Son. The deceased was fifty-three years of age.

Darwen.

Sackfield Mill, which has been worked for many years by Messrs. Bell and Company, is about to become idle, owing to the expiration of the lease. The employers have taken a new weaving shed at Ribchester, and are at present weaving up, in order to remove their machinery thither.

Derby.

The old mill in Canal-street is now being fitted up with cotton spinning machinery, and will be in full swing very shortly. There are so many of these buildings lying idle at the present time that it is to be hoped the same spirit of enterprise which has prompted the new tenants of Gascoyne Mill will be manifested by other similar firms, as from its central position and great railway facilities Derby may be regarded as a promising field for successful commercial speculation.

Haslingden.

On Saturday last the operatives employed in getting Spring Vale Mill machinery, etc., ready for running by Messrs. L. Whitaker, Sons, and Co. Limited, had an outing to Gisburne and district.

The operatives at Vine Grove Mill, Paghhouse, have presented to Mr. James Watts, their manager, a marble timepiece, with brass figures and two other ornaments, "as a token of their respect and esteem on the occasion of his marriage." On Saturday the operatives had a wagonette drive to Whittle-le-Springs, and had free refreshments, etc., provided them.

Heckmondwike.

The Comptroller of Patents has just made known his decision in the case known as "The Heckmondwike Manufacturing Company v. Alfred Fisher." It was a case in which the opponents (The Heckmond-

wike Manufacturing Company, Limited) sought to stay the grant of letters patent to Alfred Fisher, of Spring Bank, Liversedge, for improvements connected with reversible ingrain or pro-Brussels carpets, on the grounds (1) that the invention had been patented in this country on an application of prior date (the patentees of such being two directors of the opponent company), and (2) that the applicant had obtained the invention from the said company. The Comptroller sets forth that he is of opinion that Fisher's invention differs to such an extent from the opponent's invention as to constitute an improvement thereon; but he requires applicant to insert in his specification a disclaimer to the effect that he does not claim anything described and claimed in the company's patent. With regard to the second ground of opposition, he is of opinion that applicant has established his right as against the opponent company to be considered the true and first inventor. He is unable to find any transmission of the invention or part of the invention from the opponent company to the applicant; he therefore concludes that the applicant did not obtain the invention from the company. On the applicant inserting the disclaimer he will allow the issue of the patent to proceed.

Keighley.

A deputation representing the Keighley Technical Institute, the Keighley School Board, and the Keighley and District Chamber of Commerce waited upon the Keighley Town Council on Tuesday evening to urge the Council to adopt the Technical Instruction Act. The deputation handed in a letter from Mr. Isaac Holden, M.P., in support of their appeal, which was referred to the General Purposes Committee.

Kidderminster.

Messrs. Worth, of Stourport, on Saturday last gave their employes a dinner.

Leigh.

Efforts are being made in this district to thoroughly organise the twisters, beamers, and drawers. A union was formed some months ago, which is now showing signs of activity, and trying to get more members.

Littleborough.

Mr. William Barker, of Todmorden, who some time ago purchased Frankfort Mill, Littleborough, has now got some looms in motion, and efforts are being put forth to get the place in full working order as soon as possible.

Manchester.

At the County Police Court, Strangeways, on Thursday, before Mr. Lereche (stipendiary), Mr. G. W. R. Wood, Mr. D. I. Flattely, and Mr. E. Studdard, the Gladstone Spinning Company, Falsworth, were charged, together with ten of their employes, with contravening the Factories Act. Mr. A. P. Vaughan, chief inspector for this district, stated that on August 12th, a few minutes after 12.30 p.m., he visited the mill and found 10 girls working in the cardroom. A fine of 5s. and costs was imposed in each case. Mr. Tatham defended.—Mr. John Dunkerley, cotton spinner, Falsworth, was, for a similar offence, fined 5s. and costs in five cases.

Nelson.

On Tuesday evening a meeting of weavers employed by Messrs. Wilson and Holland, Pendle-street Shed, Nelson, was held to consider the position of affairs with regard to a dispute concerning the prices paid by the firm for weaving. It was decided to withdraw the seven days' notice (which would have expired next day) to cease employment.

On Wednesday a deputation of officials of the Northern Counties' Weavers' Association had an interview with the firm of Messrs. Ecroyd and Sons, Lomeshaye Mills, respecting the firm's notified intention to reduce the prices for weaving worsted satins to the prices paid by other manufacturers of these goods in Nelson. The result of the interview was that the reduction from 4s. 1jd. to 3s. 6d. per piece which it was proposed to bring into operation on one kind of cloth was amended to 3s. 10jd., being a reduction of 3jd. instead of 7jd. The Nelson Weavers' Association on the same day requested the committee of the Colne Weavers' Association to co-operate with them in the effort to establish a standard list for weaving Bradford goods in the Colne and Nelson districts. The officials of the Nelson association are now actively engaged in arranging the preliminaries of such a list, in the preparation of which Messrs. Ecroyd have offered to render all possible assistance. With a view to the joint action of employers and employed in the arrangement of the list, the other manufacturers of Bradford goods in Colne and Nelson will shortly be approached on the subject.

Oldham.

Mr. Henry Schofield has resigned his position as manager of the Middleton and Tonge Spinning Company.

The prospectus of the Pearl Mill Company has been issued this week. The mill it is intended to erect at Glodwick is to hold about 115,000 spindles.

We are informed that Mr. Oliver Isherwood is vacating his position as manager of the Harper Twist Spinning Company.

Mr. Horrocks, who has been out to Bombay on behalf of Messrs. Asa Lees and Co., fitting up, has just returned.

Mr. Sydney Stott, of Oldham, is preparing plans for a new spinning mill at New Bury, proposed to be erected by Oldham and Bolton gentlemen.

Every effort is being put forth to get the mill being erected by the Stamford Mill Company covered in before the winter months come on, so that the inside work can be proceeded with.

Several large mills in the town are just getting to work, while a few others will commence spinning operations in the course of the next month or two. The improved outlook of the spinning trade will have given a fillip to the owners of these concerns to push on with the starting of the machinery, and also in obtaining quick deliveries.

The other week we referred in an article of the tendency in this district to produce finer counts of yarn. Here is a case in point. The counts spun at the Granville Spinning Company have gradually gone finer, with the result that the spindles have been found unable to consume the production passing the cards. To remedy this the directors have decided to put in two pairs of mules, the order for which has been placed with Messrs. Asa Lees and Co.

A large number of Oldham spinners have taken advantage of the lower cotton prices to make extensive purchases of the raw material. It is reported that one firm made a good purchase when the quotations were at the lowest point touched recently. The policy of purchasing for monthly or weekly deliveries is now largely indulged in in this district. For the past two years this course has proved most successful, and it has now been adopted by many concerns which have hitherto ignored this way of doing business.

At the shareholders' meeting of the Livingstone Spinning Company, on Saturday, the balance sheet was rejected, or, to be more precise, it was resolved that it be "referred back." It seems that this action on the part of the shareholders arose from the manner in which they had treated an account with Messrs. Seville and Company, cotton brokers. It appears that Messrs. Seville's account was £1,821 16s. 4d., and owing to other firms £1,010 3s. 8d., the difference being £811 12s. 8d. over-paid for cotton, providing everything was realised from Messrs. Seville and Company. The shareholders contended that the directors ought to have dealt with the account, and not continue carrying it forward in its entirety. Hence to show their disapproval of the directors' policy, they referred the balance sheet back.

Padiham.

The company who own and run Riverside Mill have lately got a few more new looms, which have been supplied by Messrs. Butterworth and Dickinson, of Burnley. The looms are about 34 inches reed space measurement.

Preston.

Mr. William Calvert, eldest son of Mr. H. Calvert, of Ashton Park, and a member of the firm of Messrs. Calvert and Sons, cotton spinners and manufacturers, Preston and Walton, died at the residence of his father on Sunday.

Rawtenstall.

The Longholme weaving shed has been let to a local gentleman, and is to restart work at an early date.

Rosendale.

The mill known as No. 4, Bridge Mills, Whitworth, is to be fitted with new machinery of the most modern make, the works having been bought by Mr. J. H. Schofield, J.P.

Smallbridge.

Mr. S. L. Obadwick, cotton manufacturer, Grove Mill, Smallbridge, has had his mill stopped a week, in order to make the necessary alterations for the adoption of the principle of rope driving.

Stalybridge.

On Tuesday, a fire broke out in the winding-room of Messrs. Harrison's cotton mill, Chapel-street. A number of winding frames were destroyed, the damage amounting to several hundred pounds.

Todmorden.

Plans have been prepared and passed for the enlargement of the premises of Messrs. J. Smith and Co., of Frosholme Shed, Burnley-road.

Walmersley.

The Quilting Manufacturing Company, of 11, Mosley-street, Manchester, trading under the name of John Hall, Limited, whose works are at Mount Pleasant, Walmersley, have given their workpeople a trip to Morecambe, and provided a free breakfast at the Coffee Tavern Assembly Rooms, King-street, Lancaster.

SCOTLAND.**Dunfermline.**

The Scotch confirmation, under seal of the Commissariat of Fife, of the general disposition and deed of settlement (dated September 14, 1886), with seven codicils, of Mr. Robert Donald, manufacturer, Provost of the Royal Burgh of Dunfermline, who died on February 27 last, granted to Peter Donald, David Donald, and William Inglis, the executors nominate, was revealed in London on August 25, the value of the personal estate in England and Scotland amounting to over £94,000.

Kirkcaldy.

The extensive addition to Messrs. Nairn and Co.'s works in Pathhead is now nearing completion. The works of the firm are understood to be the largest connected with the linoleum trade in this or any other country.

Glasgow.

Messrs. Baird, Thompson, and Co., of Glasgow and Edinburgh, have secured the contract for the introduction of an improved system of ventilation into Messrs. Arthur and Co.'s new factory.

The Chamber of Commerce is to memorialise Her Majesty's Treasury in favour of a uniform penny postage to the British Colonies, British India, and the United States of America.

On Wednesday morning a fire broke out in the factory of Messrs. Thom, Stevenson and Co. The premises have a frontage to the street of about 200 feet, and consist of a two-storey building—the upper flat being occupied mainly by warping machines, and the lower portion used as stores. The damage is estimated at about £3,000.

Greenock.

The death is announced of an old and at one time prominent citizen, Mr. J. C. Hunter. Deceased was for many years leading partner in the old-established firm of Messrs. Orr, Hunter, and Co., rope manufacturers and sailmakers.

IRELAND.**Ballynahinch.**

A meeting has just been held here for the purpose of advocating the re-opening of the flax market. After the passing of various resolutions a conversation followed, in which general expression was given in condemnation of the present system of buying flax at mills, which those present considered was a matter of serious loss to growers, and tended to lessen the area under flax. Mr. Bogan, a flax-buyer of many years' experience, described how this had been brought about. He had known flax to be bought five and six times, and of buyers who had made the rounds of the scutch-mills attending to receive delivery of their supposed purchases only to find that some other buyer had followed them, and by bidding 1d. or 1½d. per stone more had secured the flax. The consequence was that buyers from a distance thus disappointed had ceased to attend mills in the neighbourhood, leaving the trade in the hands of one or two persons. If the market were re-established this would be remedied, and flax-buyers would know the extent of their purchases. The support of Belfast spinners and manufacturers will be asked on behalf of the project.

Bessbrook.

The value has been sworn at £226,477 (including £7,386 in England) of the personal estate of the late Mr. John Grubb Richardson, of Moyellan, county Down, who was one of the founders of the village of Bessbrook, which, with 4,000 inhabitants, has no public-house or pawnshop, policeman, or poor rate. Mr. Richardson bequeaths £250 to the Lisburn school, £250 to the Brookfield school, and £100 in trust for the maintenance of the meeting-house he built for the Friends in Bessbrook. He devises the Charlemont estate, which he bought of Lord Charlemont, the Derramore lands, held on lease by the Bessbrook Spinning Company, and the Tuckberry Farm, to his son Mr. James Nicholson Richardson, and the Ballard lands to his son Mr. Thomas Wakefield Richardson, to whom also the testator bequeaths his shares in the Bessbrook Spinning Company and two-ninths of his share and interest in the business of Richardson and Owdens. The other seven-ninths of his share in that business are left in trust for the testator's seven daughters. He devises to his wife for her life the

Derramore lands not leased to the Bessbrook Spinning Company, with power of appointment to her of the estate in favour of his daughters, and he bequeaths to Mrs. Richardson (in addition to her marriage settlements) the income during her widowhood of £40,000 on loan to the Bessbrook Spinning Company, with power of appointment to her of the annuity fund in favour of all or any one of his children. The testator bequeaths his residuary estate in trust in equal shares for all his children.

Dublin.

Three hundred female weavers at Pim's calico factory struck work on Tuesday for an increase of wages.

The leading merchants and manufacturers of Dublin met on Monday in the Chamber of Commerce to consider the feasibility of frustrating further strikes in Ireland, when it was resolved to summon a public meeting for the purpose of furthering this object.

The new Museum of Science and Art has been arranged according to carefully-considered principles of classification. This arrangement is partly by subjects and partly geographical; thus, while there are on the one hand rooms and galleries devoted to textiles, wood-carving, glass, china, furniture, and music, there are others devoted to the arts and industries of Greece and Rome, Egypt and Assyria, India and Persia, and to those of the uncivilised races of the world.

Miscellaneous.**THE BRITISH ASSOCIATION.**

The meetings of the British Association, held during the week at Leeds, have been very well attended and successful. One or two of the papers before different Sections were of interest to textile manufacturers, dyers, etc., and these we accordingly give below.

FAST AND FUGITIVE DYES.

A paper on fast and fugitive coal-tar colours was read by Professor J. J. Hummel in the Chemical Science Section, in the course of which he said:—

Some colouring matters are found to give fast colours with all mordants, e.g., alizarin, madder, cochineal; others, e.g., peachwood and young fustic, give always fugitive colours, whatever mordant is employed; whilst others again, such as logwood, give fairly fast colours, with some mordants and fugitive colours with others. . . . The problem of producing fast colours is rather one for the colour manufacturer than for the textile colourist, and indeed in the so-called alizarin colours we have already at his hands a goodly range of fast-colouring matters which makes it almost possible for the dyer to dispense with nearly everyone of the dyewoods. In many cases questions of price make this entire abolition of old for new colouring matters impossible during this age of competition; neither would it be in all cases desirable. . . . Members of some groups of coal-tar colours are for the most part fugitive; and others are nearly all fast. Those colouring matters in which the atomic arrangement is similar to that in magenta are all similarly fugitive to light. On the other hand, those colouring matters closely allied to alizarin possess generally the quality of fastness to light. Members of the eosin group are for the most part extremely fugitive. Those of the indulin group are comparatively fast. In the azo group some are fast and others fugitive.

I ask every one to get rid of the still prevalent popular idea that the modern coal-tar colours are all fugitive, while those of the older vegetable dye-stuffs are all fast. We have, as I have told you, fast and fugitive dyes in both classes. Of coal-tar colours we have at the present time about 300 distinct kinds, of which about 30 give extremely fast colours, and an equal number or more give moderately fast colours. On the other hand, out of about the 30 natural dye-stuffs usually employed we may count ten as giving fast colours. We have, therefore, a total of about three times as many fast coal-tar colours as we have as fast natural dye-stuffs. This pitting of natural versus artificial colouring matters ought surely now to cease, when, through the researches of modern science, two such old and valued friends as madder and indigo have been shown to contain colouring matters also obtainable from coal-tar. And it is by no means improbable—indeed, it is very probable—that in time it will also become possible to prepare the colouring matters of logwood, brazilwood, cochineal, and others from this protean wonder of modern times, coal-tar. Of course it is

not to be denied that we have, as you see from the diagram, a very large number of fugitive coal-tar dyes, and the indiscriminate use of these, due largely to competition, has no doubt, injured the reputation of the whole class. Not unfrequently one is asked if there is no method of rendering the fugitive colours fast. My answer is, no. The fast or fugitive character of a colour is an inherent property of the colouring matter used, and dependent mainly, if not entirely, upon its chemical constitution, as I have already said. What, then, can the dyer do to improve the fastness of coal-tar colours? My answer again is, he must examine very thoroughly the characteristic of every colouring matter, then choose the fastest and reject the rest, or, at any rate, only employ them when they are perfectly admissible. Such a process of selecting the fittest has gone on in the past with respect to the dyewoods, and such is the sifting process now at work even among the coal-tar colours. Side by side with this there must run the selection of the most brilliant and most easily applied of the fast colours, so that the ultimate goal of perfection to which we should thus attain would be to have all our colours fast, brilliant, and easily applied. Given a good range of brilliant colours it becomes possible by their varied combinations to produce the most thoroughly peculiar, pleasing, and attractive shades of grays and olives and browns, and the thousand and one delicate tints beloved by the artist. And they yield, when desired, a richness and life and body of colour compared with which older colours are poor and lifeless. Let the artist, inexperienced perchance in the application and proper use of coal-tar colours, confine his attention, if he wishes, to the more sombre and older dye-stuffs, but do not allow him to persuade you that there is neither beauty nor permanence or other quality of excellence in any of the coal-tar colours of to-day. Employ them aught with discretion, with intelligence, and they will not fail to recommend themselves to your better judgment. Rather than describe their discovery as useless, even from an artistic point of view, I would say all honour to the founder of the coal-tar colour industry if, in the beginning, he gave us the fugitive mauve; did he not afterwards labour hard and successfully in the cause of the fast artificial alizarin? All honour, then, I say, to Dr. Perkin, who has been instrumental in giving to the world not only fugitive, but fast coal-tar colours. (Cheers.)

A short discussion followed, in the course of which

Professor Hartley (Dublin) observed that as the result of experiments he had made he had come to the conclusion that they might expect water-colour drawings to last 100 years, provided they were protected from the influence of direct sunlight. Indigo was sometimes considered a fugitive colour, but whether it was or not depended very much on the nature of the indigo, and of the drawing paper; even the best drawing paper was invariably acid, and a wash of indigo on such paper was bound to be affected by the acid.

THE VULCANISATION AND DECAY OF INDIA-RUBBER.

In the Chemical Science section, Mr. W. Thomson (Manchester) read a note on this subject. After a detailed explanation of the processes, he said that it is known that copper salts have a most injurious effect on india-rubber, and as copper is sometimes used in dyeing black and other colours, cloths so dyed are liable to decompose, and harden the rubber put into it. A peculiarity investigated by the author is that metallic copper placed in contact with thin sheets of india-rubber bring about oxidation and hardening of its substance, although no appreciable quantity of copper enters the india-rubber, whilst metallic zinc and silver have no injurious effect on the rubber.

In answer to questions, Mr. Thomson said he had made experiments with the view of ascertaining the action of oils on cloth. He found that if the oil contained a certain amount of copper, which it often did, and it got on to the cloth, the action of the bleaching agents on the copper damaged the cloth. In the ordinary linseed oil there was an acid which rotted cloth. The smell of india-rubber was one of the characteristics of its decomposition. He had noticed that when a piece of blotting-paper was placed over the decaying rubber it became coloured by some of the emanations—a state of things he did not find in the case of good india-rubber. There was no doubt, therefore, that during the oxidation which produced the hardening certain volatile substances were produced. Rubber could best be kept under water, under glycerine, or in coal gas. He had also placed rubber in a vacuum and exposed it to sunlight for 12 months, and found it remained perfectly good. All oils, except castor oil, had a most detrimental effect on india-rubber.

RABBIT FUR AS A TEXTILE FIBRE.

Apropos of Mr. Gladstone's recent recommendation to cottagers to rear tame rabbits for food, the *Warehousemen and Draper's Journal* has the following remarks upon the utilisation of Bunny's fur:—

Apart from their inroads upon the Australian colonies, rabbits are assuming considerable importance at home. As is well known by this time, Mr. Gladstone has recommended that more attention should be paid to the rearing of tame bunnies for profit, and he might have mentioned that they are already kept in hutehes at Osborne, to the number of 70 or 80, having been brought specially by her Majesty from Aix-les-Bains and Cannes, for the sake of their long, fleecy wool, which is readily plucked for the Princess Beatrix to weave up. Here would have been another advantage to claim for rabbit-keeping, as well as the pleasure of following a royal example. Most people would have thought that the fur of rabbits, even of any variety, would have been too short to deal with successfully, but we may remember how the women that were wise-hearted spun goat's hair for the curtains of the tabernacle, and there is sufficient evidence that in early England the "wool" of badgers was wrought—we can hardly imagine with what patience and pains—into cloth for garments.

John Howard during his inspection of Continental prisons, found in the *Hospicio* at Madrid "a well-regulated manufactory in which the sexes were entirely separated. A considerable number of men, advanced in years, were picking wool. In one room 150 boys were spinning worsted; in another, 50 were carding wool. Forty or fifty looms were employed on coarse linen, others on wide cloth. In two rooms stocking and waistcoat frames were observed. Some boys were carding and spinning the down of hares and rabbits for gloves."

Within our own time the jurors of the French International Exhibition of 1867 have advocated the raising of rabbits, not only for food and fur, but for the fine hair of the Angora and Cashmere varieties, spun into silky yarn in some parts of France, and so much sought after in North America for making certain shawls that as much as £3 was said to be often given for fur skins of rabbits only five or six months old. Mr. F. L. Simmonds, when quoting the official report, added that, if properly prepared, rabbit hair could be made into good strong yarn, believed to be in no way inferior to wool, and that, when mixed with silk and cotton, it had been made up both in England and America into a kind of cloth for ladies' wear. This is conclusive enough as to the textile possibilities of rabbit skins, but still considerable skill is required in dealing with the material, and it would be very interesting to know something more of the Princess's work and proficiency in spinning and weaving.

Before the supply of textile materials was so plentiful any kind of fibrous substance was pressed into the service of mankind and all sorts of hair were utilised. Dog's hair was made into carpets, cow's hair into cloth, "coney-wool" was a common article of trade, and must have been generally employed when the French prohibited its use, under heavy penalties, while they were masters of Canada, lest beaver-fur, which was then spun and woven into fabrics should be injured. But these instances are all put into the shade, so far as antiquity is concerned, by finding that the hair of hares was regularly bought and sold among the Romans, and used, among other purposes, for stuffing cushions. Indeed, Pliny mentions an attempt to manufacture the fur of the hare, but tells how it failed because on account of its shortness, as he supposes, the filaments would not adhere or felt together. This may be claimed as a remarkable little chapter of textile history, but has it no suggestion for Australia? Has any thought been taken there for fadling out or developing the use of "coney-wool," either for woven or felted fabrics, or in upholstery?

THE JUTE TRADE IN GERMANY.

The spinning and manufacturing of jute has so much increased in Germany during the last few years that the markets are no longer dependent on Dundee for the supplies of yarns or goods. With the exception of four or five private firms, the whole trade is carried on by limited companies, with ample capital to carry out their operations. The results at first were rather disappointing, but during the last two or three years the companies have been able to produce very satisfactory balance sheets. The old works have been greatly enlarged, and new and extensive works have been erected, and are already in operation; and being fitted with the newest systems, both in the mills and the weaving sheds, the production is very large, quite equal to the consumption. The works are thoroughly well managed, the directors as well as the mana-

gers being all business men, and both yarns and goods can compare favourably with the best mills in Scotland.

The importation of jute is steadily increasing. The mills formerly supplied themselves in the London and Liverpool markets, but with the extended and constantly increasing communication between Germany and the East, about one-half of the supply is now imported direct from Calcutta, thus saving the heavy transshipment charges. Hamburg is the chief port both for the importation as well as for export, Bremen having only a very small share, about one-eighth of the imports and exports. In 1888 there were imported into Hamburg:—

	Kilogrammes.	Value. Marks.
From Calcutta	22,140,900	6,788,900
„ Great Britain ..	27,528,300	7,585,200
Total	49,668,600	14,374,100
In 1889—Calcutta	33,818,808	10,421,370
Gt. Britain ..	22,754,400	7,077,720
Total	56,573,200	17,499,090

The imports from Calcutta direct thus shewing a considerable increase both in quantity and in value. The imports into Bremen are not so correctly given, being mixed up with other fibres, but in addition to the above it may be safely taken that the import into Bremen was about one-eighth of the above. As will be seen from the following, the whole of this quantity was required for the home consumption. Notwithstanding the heavy duty there were imported into Hamburg in 1889, sacks from:—

	Kilogrammes.	Value. Marks.
Great Britain	4,593,570	3,411,980
Other Countries	970,280	389,340
Pieces	5,563,850	2,801,320
And Hessians and Sackings—		
Great Britain	8,676,900	5,427,310
Other Countries	322,300	155,690
Kilogrammes	9,001,200	

Total value of imports, In 1889 there was exported—	8,384,310
Sacks	1,731,690
Hessians and Sackings	6,290,990

Total value of exports

—the imports and exports of the manufactured goods being about equal. The South American markets are the best customers, taking nearly one-half of the Sacks and two-thirds of the Hessians and Sackings, the rest going to the West Indies, America, and Australia.

The increase in the production of yarns and goods during the years 1888-1889 is estimated at about one-third, which is about in conformity with the increased importation of jute. Owing to the great activity in the grain trade in 1889 the demand for all manufactured goods was very brisk, and notwithstanding the higher prices of jute and all other materials, the millowners were enabled to obtain a corresponding advance in prices—this, coupled with the large stocks of jute and manufactured goods held over from 1888, which were laid down at the moderate prices prevailing in that year, enabled the companies to declare very handsome dividends. With some few exceptions, the shareholders in 1890 will have to be content with much smaller dividends, probably not much more than one-half of those earned the previous year. The increased price of jute and other materials, the rise in wages, the disturbances in the labour market have had the effect of diminishing considerably the profits in comparison with the last two years.

In all the balance-sheets for Companies put aside considerable sums for the building or enlarging or repairing workmen's houses, schools, &c., and a certain sum has also to be deducted yearly for the Invalid Assurance Fund. The average number of working hours is eleven per day, which, with the agitation now going on, will probably be very soon reduced to 10, if not further. Should the working hours be so reduced the very serious question will arise whether the Government will not have to raise the present high duty. The mill-owners make no secret of it that were it not for the duty they could not successfully compete with the Scotch spinners, so that if their production is curtailed, and the cost of production thereby increased, they are sure to clamour for more protection. The state of the trade therefore, although moderately prosperous at present, cannot be said to be so flourishing as in 1888-89. Dundee exporters need not fear any competition from the German markets for some years to come, unless it be carried on at a heavy loss.

The system of management, in accordance with the German law, would be considered in Scotland as too elaborate and oppressive, but it undoubtedly

works well. The whole of the accounts are audited monthly, and although it is unnecessary to draw out a balance-sheet, yet the information thus obtained is essential to the Aufsechts Rath, or Committee of Council and Investigation, or Directors, as they are called here. It must be borne in mind that the Aufsechts Rath, or Directors, have no fees, but are paid by a tantéme, or percentage, of the annual net profits (otherwise no pay). This tantéme, or percentage, is given by the shareholders, and it is therefore the manifest interest of the members that the business should be profitably carried on. They are almost invariably business men, who look to the profit on the interests entrusted to their charge, and so long as the business is conducted as if it was their own individual concern there is no liability, but any neglect of this is punishable both by fine and imprisonment. They cannot interfere with the Executive, but they can advise and remonstrate if necessary. The Executive is entirely in the hands of the managers, who have a moderate fixed salary, and also a percentage on the net profits. The Aufsechts Rath, or Committee, can, if they are dissatisfied, suspend them at any time, or dismiss them, subject to the approval of the shareholders at the next general meeting. The head artificers have of course their wages, as well as a percentage on the net profits, until the tantéme, or percentage, voted at the annual meeting of shareholders is exhausted. After deducting from the net profits the tantéme, or percentage, there is, of course, the depreciation in the stocks and machinery to be written off. Besides this, it is the German law, and which must in everything be strictly followed, that at least 5 per cent. shall be written off for reserve, until it arrives at a certain percentage of the capital approved of at the outset by the authorities. To judge, therefore, from this the manufactory should be on a good and solid basis, and the money invested, if not always yielding the anticipated profits, may be regarded as a sound investment.

The Germans have gone through since 1872, when the fever of bogus Companies was at its highest, the same or similar collapses as experienced in Great Britain, until they have at last, after many alterations and amendments, arrived at something like what a Company ought to be, viz., business carried on by parties who seek to make a profit as if it was their own individual calling in life.

Of course these laws were not framed for Jute Companies alone, but apply to all Companies, and these remarks are made to show that the balance-sheets published, through Government, not only by Jute but other Companies may be pretty safely relied upon.

In the feverish state of speculation which existed in Berlin at the end of 1888-89 the shares in all industrial undertakings were driven up to an unwarrantably high figure, in which, of course, the Jute Mills participated. Notwithstanding the good dividends they declared, the value of their stocks as quoted on the Berlin and Hamburg Stock Exchange have declined fully 20 per cent., and the probability is that they will go somewhat but not much lower than they are at present.—*Dundee Advertiser*.

Textile Markets.

COTTON.

MANCHESTER, FRIDAY.

The reductions that have taken place in cotton prices during the storms of the past two or three weeks, recall forcibly those of the American Civil War period. The damage which speculators have suffered is so serious that there will certainly be no attempt to interfere with the natural and even course of business to the end of this year at least. Throughout the spinning and manufacturing districts, whatever may be the sentiments in Liverpool, no sympathy is entertained for the leading "corner-man," nor for any of his satellites. In other matters pertaining to the trade, the most interesting has been the action of the cotton trade delegates to the Trades-union Congress, which has elicited commendation on every hand. It was impossible that men of the great experience in connection with trades-unions which they possess, could commit themselves to the economical absurdities and monstrosities put forward by the most ignorant and unskilled section of labourers in the kingdom. It is exceedingly probable that the entire textile industries will retire from all connection with the Congress in the future, which will certainly be more desirable than that they should be compromised in the wild and ill-considered views and action of the frothy democratic leaders of ignorant workers in the metropolis.

COTTON.—As anticipated in our last report, cotton during the past week has suffered a further consider-

able reduction. The panic amongst sellers at the close of last week received very little check, though the trade demand on Friday slightly improved, and a better tone became apparent as the day advanced. Holders, however, offered freely, and prices declined $\frac{1}{16}$ d. Futures suffered a relapse of 3 to 4 points, but recovered and made a slight gain before the close. On Saturday the market again became very dull, and spot Americans were again reduced $\frac{1}{16}$ d.; but futures, after fluctuating, closed with a further slight gain. Monday witnessed an improved tone in both spots and futures. On Tuesday reports from the American side imparted more firmness to the market, and it was found necessary to put up prices of Americans $\frac{1}{16}$ d. On Wednesday this feeling was maintained, but yesterday a relapse occurred, as the Bureau report was not as adverse to the growing crop as it had been rumoured, and futures lost 4 to $\frac{1}{2}$ points on the day. Egyptian has continued in slow request, and prices have declined $\frac{1}{16}$ d. to $\frac{1}{8}$ d. A similar reduction has occurred in Brazilians. Rough Peruvians are quiet, whilst smooth varieties are reduced $\frac{1}{16}$ d. In East Indians, saw ginned Dharwars, and Tinnelvells have declined $\frac{1}{16}$ d. Other varieties are unchanged. The following particulars of the business of the week are from the official report issued by the Liverpool Cotton Association:—

	Import.	Forwarded.	Sales.	Stock.	Actual Export
American	16,354	47,632	39,000	250,120	1,430
Brazilian	2,057	600	1,390	37,550	42
Egyptian	1,136	2,346	1,770	34,450	100
W. Indian	1,280	822	940	10,790	373
E. Indian	—	5,166	6,040	252,800	370

Total 20,827 56,466 50,180 585,710 2,905
The following quotations are from the same source:—

	G.O.	L.M.	Mid.	G.M.	M.F.
American	5 $\frac{1}{16}$	5 $\frac{1}{16}$	5 $\frac{1}{16}$	6 $\frac{1}{16}$	6 $\frac{1}{16}$
Pernam	—	—	—	6 $\frac{1}{16}$	6 $\frac{1}{16}$
Ceara	—	—	—	6 $\frac{1}{16}$	6 $\frac{1}{16}$
Paraha	—	—	—	6 $\frac{1}{16}$	6 $\frac{1}{16}$
Maranhm	—	—	—	6 $\frac{1}{16}$	6 $\frac{1}{16}$
Egyptian	—	—	—	6 $\frac{1}{16}$	7 $\frac{1}{16}$
Ditto, white	—	—	—	6 $\frac{1}{16}$	7 $\frac{1}{16}$
M.G. Broach	—	—	—	5 $\frac{1}{16}$	6 $\frac{1}{16}$
Dholerah	—	—	—	4 $\frac{1}{16}$	4 $\frac{1}{16}$
Oomra	—	—	—	4 $\frac{1}{16}$	4 $\frac{1}{16}$
Bengal	—	—	—	3 $\frac{1}{16}$	3 $\frac{1}{16}$
Tinnivelly	—	—	—	4 $\frac{1}{16}$	5 $\frac{1}{16}$

YARNS.—As in cotton so in yarns, especially those made from American cottons, there has been a good deal of irregularity. Still spinners are far from having reduced prices equivalent to a reduction in cotton values. This, however, it would be very unreasonable to expect, as they failed to carry yarn prices up to the extent to which cotton went, and, in fact, almost entirely lost their margin of profit. Could they succeed in establishing the present prices as the basis of any important business, they would do fairly well, as it leaves them a satisfactory margin. In other descriptions of yarns proportionate changes have taken place, but in none of them is an average business in progress. It will take another week or two for merchants and the trade to feel their whereabouts safe. Towards the close of the week there is a slightly-increased inquiry, but not much increase of actual business.

CLOTH.—In cloth there has only been a quiet demand from the leading markets of the East. The smaller markets of the Mediterranean are sending a fair amount of inquiry, but these are not of sufficient magnitude to sustain it. The home trade is very quiet at present, it being between seasons. The general outlook, however, is regarded as fairly satisfactory, and there is good reason to anticipate a healthy trade for the remainder of the year. Hence offers much below manufacturers' views are out of the pale of consideration.

WOOLLENS AND WORSTEDS.

BRADFORD.

Rates here are still much lower than those prevailing in the country, and difficulty is therefore experienced on this account in doing anything like an extensive business. Though lustrous and demi-lustrous are too firm to please consumers, who are holding off in consequence, colonial wools are slow. Botanics having become firmer, there is a more evident disposition to operate. Alpaca is still in favour of sellers, and quotations for mohairs are strong. As to the piece branch of the trade, the slight improvement in the raw material is not in the least reflected here. The only branch busy is in 4-4 Italians for Japan, and makers of these are all well engaged, and will be for some time yet. They complain, however, of the unsatisfactory

state of prices. Very little is doing for the Continent. A few travellers have left for their markets but it is too early as yet to expect business from them. There is no change in regard to America, and the home trade is anything but brisk. Prices remain practically without alteration.

LEEDS.

Spring and autumn novelties are in brisk request amongst shippers, and the market has therefore improved. Although producers have not been able to get better prices, the demand for serges has improved considerably, and tweeds are also in good demand, especially for British North American and the Antipodes. Worsteds coatings are slower, but prices keep firm. Printed meltons are in moderate demand for the ready-made trade. Plain browns, greens, and dark blues are more frequently inquired after. Covert coatings and Bedford cords are also receiving attention after some weeks' neglect, and quotations for them are rather higher than buyers formerly were accustomed to. For heavy woollen there is not much inquiry.

GLASGOW.

Messrs. Ramsey and Co., in their report dated 9th Sept., say:—

WOOL.—In the wool market there is only a moderate business doing. Buyers still show a good deal of hesitancy, and all are anxiously awaiting the result of the Tariff Bill. Meantime, wools are well held, and prices are firm.

SHEEP SKINS.—The supply is continued at a full average, with a large proportion of good sorts. The tendency of prices was slightly weaker, and former rates are barely maintained.

FLAX AND JUTE.

BELFAST.

The August circular of the Flax Supply Association says: There is a large falling off in the imports of flax and tow, August just ended being 55.3 per cent. in quantity and 55.8 per cent. in value under August, 1889. From Russia alone the decrease is 64.8 per cent. in quantity; this is the third month in succession exhibiting a large decrease from that country, but April and May having contributed increases, the net decrease for the eight months is only 5.7 per cent. Belgium exhibits an increase of 35.9 per cent., but covering the eight months the net increase would be 17.4 per cent., and contrasting the totals for the eight months just ended, and corresponding period in 1889, the decrease is 3.6 per cent., and 10.6 per cent. in quantity and value respectively.

In the exports of yarn there is an increase in the quantity, but the value is slightly the other way. The United States are at the head of the list with an increase of 146.3 per cent., followed by Belgium with 129.9 per cent., and France with 46.3 per cent. all in quantity. Comparing the eight expired months of the year with similar period in 1889, the totals exhibit an increase in quantity and value respectively of 11.3 per cent. and 2.9 per cent.

The exports of linen piece goods for August are less than for the corresponding month in 1889 by 11.2 per cent. in yards and 14.2 per cent. in value. The exports to Germany are down 39.2 per cent., to Mexico 39.0 per cent., and to the United States 25.1 per cent. all in yards. There is an increase to foreign West Indies of 58.1 per cent., to British East Indies of 61.2 per cent., and to Brazil of 79.5 per cent. For the eight months the total increase is 5.1 per cent. and 0.8 per cent. in quantity and value respectively.

DUNDEE TRADE REPORT.

WEDNESDAY, 10th Sept., 1890.

The Calcutta telegrams have been full of the terrible floods which have interrupted transit of jute to the coast. The wires to-day report that the effects of the floods have been greatly overstated, and that the roads and bridges are repaired. The effect of these telegrams, as well as the uncertainty in America as to the real meaning of the changes in the tariff, have caused the market here to become very unstable.

Jute is not to be had at £12 for best firsts; £12 6s. has, indeed, been refused to-day.

The feature of the week in the flax market is the rise on tows. From ten shillings to a pound of an advance has been paid, and the feeling strengthens that the lowest point has been touched.

Jute yarns are quiet. Sellers, while reluctant to break their prices, are anxious for new business, and on some sizes a slight concession is made.

For 8lb. common cops 1s. 3d. is the price.

Hessians are quiet, and for all except wide goods with colour—which are now out of all the usual proportion costly—slight concessions are made.

Flax yarns, while not dearer, are more firmly held, and on some kind of tows a small advance is paid.

Linsens are in fair demand, and there is a better feeling prevalent this week.

The proposal to admit binder twine free to America has caused numerous inquiries. There is no doubt that the farmers who think costly cord essential, are under a delusion. Since last week, with the welcome change in the weather, thousands of acres have been cut in Scotland. The jute binder twine runs from end to end without a hitch, and answers every end as well as the cord made from the most expensive fibre. Of this we have now not an opinion, but ample experience to guide us.

Arbroath is still busy. The heavy flax goods are wanted; the very low price of tow yarns encouraging this industry.

Dundee is well engaged in fancy jute goods, and makers of cords and twines are exceptionally busy.

MANCHESTER.

There has been a fairly encouraging amount of inquiry visible amongst the home trade, notwithstanding the reports from the manufacturers' agents here regarding the slowness of business. Very large quantities of goods have been distributed this week, and stocks have been considerably reduced.

This year (writes a correspondent of the Calcutta *Englishman*) we have been receiving very favourable reports about the new crop from the various jute-producing districts, and it is generally believed that the crop will be a very large one. In the beginning it was said that rain fell in almost all the places, and sowings were almost equal to, and in some places even more than, those of last year. Prices of old jute were low, and a large stock at Calcutta and foreign ports has kept the market down. That the last year's crop was a very big one nobody can deny; and it was only the middlemen, and not the ryots, who suffered heavy losses after the fall in prices. The ryots cultivated about the same areas as in previous years; but this time they have not been so sanguine as to neglect paddy altogether. Seasonable rain and sun favoured the growth of the early plants, but in many places rain was wanted very badly, and side by side plants of various heights were to be seen. After weeding was finished rain continued to fall incessantly and in torrents, to the great injury of the healthy growth of plants, and insects destroyed the tops of the plants in various places. Rivers did not rise as usual at first, but rose suddenly, and ryots could not help cutting kutchas and immature plants. At present almost the whole of Eastern Bengal is flooded, and we are sure that a good number of fields will be left uncut. By the time the water will subside the roots will have become rotten. Thus, taking all the circumstances into consideration, I am of opinion that the crop will turn out about two to three annas less, and that the quality after September will be very poor and dirty.

HOSIERY AND LACE.

LEICESTER.

Wool is firmer, supplies in the hands of manufacturers having been reduced considerably. Choice lots of lustre and demi-lustre fleeces are inquired for more freely, and as production is not in excess of consumption, judging from present indications, sellers have by far the best of the position. Good half-hog and ewa wools make 24s. to 25s. 6d. per tod; superior descriptions, 26s. to 27s. per tod; lots, including a large proportion of Shropshire fleeces, 27s. to 28s. 6d. per tod; and inferior clips, including Scotch fleeces, 22s. to 23s. per tod. Colonial wools are more inquired after. Spinners buy larger lots, but speculation is still avoided. Yarns are steady, stocks being low; prices, however, are still relatively below the cost of the raw material. Lambswool yarns are brisker, and cashmere and merino yarns are more inquired for. The hosiery trade is fairly brisk, and production is larger. Elastic webs are brisk.

NOTTINGHAM.

Some American buyers are expected shortly, and when they arrive hopes are entertained that an improvement in the market, which still keeps very dull, will take place. The home trade is slow and shipping also is quiet. Notwithstanding the curtailment of production, fancy cotton millinery laces are in large supply and the demand drags. Profits are cut down to a very low ebb, and many complaints are made in consequence. Valenciennes, Maltese, torchon, Duchesse, point de Venise, Brabant, Bretonne, Mechlin point, and macramé are amongst the varieties of laces for which there is some demand, but in no case is the inquiry for the goods really brisk. Spotted and sprigged veil nets, Russian nets, plain and spotted, and costume nets are

in fair request. A steady business is being done in silk Brussels and Cambray nets. Silk Chantilly and Spanish laces are selling to some extent. There is a moderate demand for bobbin and mosquito nets, and prices are firm. The curtain branch is still tolerably active, and will be further stimulated when the buyers from the United States arrive. The hosiery trade is not buoyant, although some manufacturers are kept well employed. Fancy cashmere and merino goods are in request, and the black hosiery is still popular. Mitts and gloves meet with a moderate sale.

SILK.

LONDON.

THURSDAY.—London Produce Clearing House quotations of 5½ Testate: September 12s. 5d., October 12s. 6d., November 12s. 7d., December 12s. 8d., January, 12s. 8d., February 12s. 8d., March 12s. 9d. per lb. Sales registered, nil.

DRY GOODS

MANCHESTER.

VELVET SPOTS A FAILURE.—NEW DESIGNS IN FANCY FLANNELS.

Reports this week are again conflicting. Some of the leading houses representing the Manchester trade proper have been very busy, and on Thursday and yesterday the scene in the packing rooms was a very busy one. The early closing of the goods yards and warehouses has had a considerable influence on the arrangements of the home-trade houses wherever there is a rush, as orders cannot be executed as promptly as was the case before the carrying companies issued their recent circular. In the course of time, however, it is probable that distributors will be able to cope with the difficulties that beset them.

Russian net with velvet spots referred to previously has been tried and found wanting. The material looks very pretty, but the spots (which are fixed on to the groundwork by some adhesive material) come off after being exposed to a shower of rain or to any unusual amount of moisture. If manufacturers could devise some process by which the spots could be fixed on to the fabric by the machinery employed in producing the lace, this difficulty would be avoided, and larger sales in all probability would follow. Plain silk Brussels nets and Chemille spot silk nets are brisker, but the French manufacturers are doing most of the trade, Nottingham only having a small share in proportion. Some of the new styles in curtain-made costume nets are being brought forward and others are promised. Vermicelli patterns will, it is thought, have a good run, stripes having had their day. Some most extraordinary effects have been introduced. The shipping trade is quiet. Common torbans have been sold freely for South America.

The new fancy tennis flannels that have been brought forward contain a wide selection of stripes and checks of the usual quiet designs seen in the woven variety of these goods.

THE KIDDERMINSTER CARPET TRADE.

For two or three days the latter part of last week, attracted by the important sale of Messrs. H. R. Willis and Co.'s stock of Brussels and Wilton carpeting, the Kidderminster district was literally overrun with buyers. The visit, it need hardly be said, was no unwelcome one, and the result is pronounced by most of the manufacturers as eminently satisfactory from a business point of view, and in some instances very substantial orders remain *in evidence* of their presence. Apart from this, business continues much in the same condition as a week ago, and until the autumn campaign fairly opens no sensible increase in productions can take place.

Messrs. H. R. Willis and Co.'s sale of manufactured stock, which has now become an annual event, and which always excites a certain amount of interest in carpet circles, took place on Thursday of last week. The fact that the quantity of goods brought under the hammer exceeded anything hitherto offered in this way by the Messrs. Willis, brought together the largest number of buyers ever seen in Kidderminster. In former years Messrs. Willis have confined their sale to surplus stock only, about 400 or 500 pieces; but on the present occasion, in consequence of important alterations they intend making in the quality of the goods they will in future manufacture, the catalogue included the whole of their stock, nearly 1,400 pieces. These consisted principally of Brussels body,

stair, and border carpeting. As was expected with the array of buyers on the spot, biddings were brisk throughout, and the numerous lots were rapidly knocked down. Prices realised all round were considered high; indeed, in some instances, almost the regular prices were reached; and Messrs. Willis and Co. express themselves as being exceedingly well satisfied with the result. Some of the largest purchasers were Messrs. Cook, Sons, and Co., London; Crisp and Co., London; Army and Navy Stores, London; Potts and Ward, London; A. B. Dean, Birmingham; Frisby, Dyke, and Co., Liverpool; T. and J. Roberts, Sheffield; Bainbridge and Co., Newcastle; Ray and Miles, Liverpool; Papham, Radford, and Co., Plymouth; Thorpe Bros., Bradford; and Dunn and Co., Newcastle. It was particularly noticeable that not a single Manchester carpet house was represented at the sale. It is rumoured that another firm contemplates clearing out their surplus stock shortly by auction, but whether this is merely a *canard* or not remains for the future to decide.

Changes have taken place in the construction of a number of concerns in the carpet trade during the present year, and a thorough organisation of the travelling staff connected with one or two firms has been found necessary. Messrs. Woodward, Grosvenor, and Co., Limited, have made several changes in this respect recently. In addition to those already mentioned, Mr. F. A. Cowell has this week been appointed to represent the firm's interest on the Welsh and a portion of the Northern ground. Mr. F. A. Cowell, who, by-the-by, is a son of the late Mr. Thomas Cowell, who will be remembered as with Potter and Lewis, and a nephew of Mr. Albert Cowell, a director of the Carpet Manufacturing Co., Limited, has been with Messrs. Woodward, Grosvenor, and Co. many years, and has acquired a thorough practical knowledge of the manufacture of a carpet, which is becoming more and more essential on the road.

Joint Stock and Financial News.

COTTON COMPANIES' REPORTS.

THORNHAM (ROYTON).—The profit is £1,675 and a dividend of 1s. 9d. per share will be paid, placing £625 to the reserve fund. The share capital is £39,000 and loan £52,126. The fixed stock is valued at £78,878, and there are 25,356 twist and 61,168 weft spindles.

SHAW (SHAW).—The profit is £507, and a dividend of 1s. per share will be paid. The share capital is £49,000 and loan £19,029. The fixed stock is valued at £53,875, and there are 30,670 twist, and 89,330 weft spindles.

NEW COMPANIES.

WOOL STAPLING COMPANY, LIMITED.

Registered by Kerr and Lanham, 3, Chichester-terrace, Chancery-lane, W.C., with a capital of £2,000 in £10 shares. Object, to promote wool-stapling and other business in connection therewith. Most of the regulations of Table A apply.

NEWCHURCH SPINNING AND WEAVING COMPANY, LIMITED.

Registered by R. Jordan, 130, Chancery-lane, W.C., with a capital of £63,000 in £7 10s. shares. Object, to acquire the cotton mill known as Victoria Works, Cloughfield, Lancashire, and with a view thereto, to carry into effect an agreement, made July 30, between Ralph Whittaker of the one part and Robert Parker of the other part; to carry on the business of spinners, weavers, and dealers in cotton, yarn, and other fibrous products. The first subscribers are:—

R. Ashworth, St. James's-terrace, Waterfoot, Lancashire	1
R. Parker, Beehive-cottages, Rawtenstall, Lancashire	1
E. Whittaker, Eden Bank, Ramsbottom	1
G. Bridge, Oak Bank, Rawtenstall	1
J. H. Ashworth, 9, North-road, Cloughfield	1
J. Taylor, Cawl-terrace, Cloughfield	1
J. Brooks, Calendar-street, Ramsbottom	1

There shall not be less than seven directors. The first are the subscribers to the memorandum of association. Qualification, £75. Remuneration to be determined in general meeting.

FLOATING FABRICS, LIMITED.

Registered by Carr and Son, 23, Rood-lane, E.C., with a capital of £51,000 in 1,000 founders' shares of £1 and 10,000 shares of £5 each. Object, to acquire letters patent, dated September 27th, 1884, granted to William Jackson for an invention of im-

provements in linings for garments; letters patent granted the same date to William Jackson for the invention of a new or improved buoyant fabric; a patent, dated December 4th, 1885 (No. 179 of 1885), granted in India to William Jackson for the last-mentioned invention and the trade marks, plant, stock-in-trade, effects, duplicates of models, &c., in accordance with an agreement made between William Edmunds Miller of the one part and the company of the other part. The first subscribers are:—

C. C. Ross, 229, Cornwall-road, Westbourne-park	1
C. Hope, 62, Loughborough-road, Brixton	1
T. Turner, 268, Essex-road, Islington	1
W. H. Champion, 208, Essex-road, Islington	1
W. S. Mappin, 61, Elsbam-road, W.	1
R. Warner, 300, Winchester House, E.C.	1
D. Chambers, High-street, Alfreton, Harrow	1

There shall not be less than three nor more than seven directors. The first are D. A. Onslow, C. C. Ross, J. T. Hamilton, and W. Sandell Mappin. Qualification, £100. Remuneration, £600, divisible.

Gazette News.

NOTICES OF DIVIDENDS.

T. Wheelhouse (separate estate), residing and trading at Birky-lane, near Bailiff Bridge, Yorkshire, and also at Brankholme Works, Bradford road, Bailiff Bridge, as Taylor and Wheelhouse, tanner, currier, and leather merchant, trading with John Hall as J. Hall and Co., and lately as A. Broadley and Co., as commission wool combers; 5s. second.

T. Marsden (trading as J. Marsden and Sons), Wyke, near Bradford, manufacturing chemist and logwood cutter; 2s. 9d., first and final.

D. Whittle, Beach Lea, Montague-road, Sa'e, and 87, Princess-street, Manchester, calico printer; 1s. 5d., first and final.

PARTNERSHIPS DISSOLVED.

Preston and Co., Lower Wheel Bleach Works, Deeply Vale, near Bury, bleachers.

Springfield Mill Co., Bramley, worsted coating manufacturers; as regards Walter Ackroyd.

Bercy, Stewart, and Co., Romford-street, Liverpool, cotton brokers, etc.

A. Paterson and Son, St. Joseph-street, Hunslet, Leeds, flax spinners.

Thomas Whitham and Sons, St. Paul's-street, Leeds, cloth merchants.

Patents.

APPLICATIONS FOR PATENTS.

The names in italics within parentheses are those of Communicators of Inventions. Where Complete Specification accompanies Application an asterisk is suffixed.

1ST TO 6TH SEPTEMBER.

13,705. G. F. STODGESS, 17, Biddulph-street Leicester. Knitting machines.

13,708. W. S. OLAPHAM and C. HAGGAS, 58, Low-street, Keighley. Bearings for the wharfs and tubes of spinning and twisting machines.

13,710. J. DAWSON and R. HISSOP, Kirkheaton Colour Works, Huddersfield. Substituted benzidines (diamidodiphenyles) and colours therefrom.

13,711. J. SHEPHERD, Holly House, Davenport, Cheshire. Covering textile rollers.

13,738. T. BURROWS, 2, Victoria Mansions, Westminster. Decorticating or scutching fibre-bearing plants.

13,742. J. C. ATKINS and S. SHAW, 78, Maple-street, Hollinwood, Lancashire. Automatic regulating lever for preventing sudden strains on scroll bands for mules.

13,756. A. H. NORMAN, Nayland, *vis* Colchester. Obtaining fibres from rami, esparto, or similar grasses.

13,775. H. H. LARK, 45, Southampton Buildings. Cotton gins. (*F. H. Chase, U.S.*)

13,786. H. H. LARK, 45, Southampton Buildings, London. Cotton gin roller. (*F. H. Chase, U.S.*)

13,810. J. LAIDLAW, 154, St. Vincent-street, Glasgow. Centrifugal machines.*

13,813. G. ASHWORTH and E. ASHWORTH, 1, St. James-square, Manchester. Carding engines.

13,821. J. FARNHAM, Commercial-street, Halifax. Winding, doubling and twisting yarns or threads.

13,832. C. E. WRIGHT, 78, Fleet-street, London. Cases for holding hosiery goods.

- 13,834. E. DYSAN, S, Quality-court, Chancery-lane, London. Bobbins employed in throstle spinning and doubling frames.
- 13,835. T. G. WADSWORTH, S, Quality-court, London. Fastening or securing the wheels of shuttles employed in looms.
- 13,861. G. JAGENBURG, 166, Fleet-street, London. Washing, mordanting, or dyeing spun and unspun textile fibres.
- 13,872. A. W. METCALFE, Sunbridge Chambers, Bradford. Travellers for spinning, and the like.
- 13,856. J. EDLSTON, 64, Barton Arcade, Manchester. Instrument for determining the number of hooks and cards required for jacquard designs.
- 13,968. J. H. GARTSIDE and W. WARR, 18, St. Ann's-street, Manchester. Dyeing wool, cotton, silk, or jute, or other fibre, or a mixture of wool and cotton black.
- 13,965. K. T. SUTHERLAND and G. ESDAILE, 39, Pritchard-street, Chorlton-upon-Medlock, Manchester. Treatment of long-staple stalk-fibres, as China grass, flax, and such like fibres, by which they will have a more even staple when artificially shortened.
- 13,966. J. W. BULLOCK, 4, St. Ann's-square, Manchester. Preparing spinning, and doubling cotton, etc.
- 13,970. H. PAYNE, 96, Buchanan-street, Glasgow. Rolling and unrolling of woven fabrics or piece goods, and appliances therefor.
- 13,986. J. A. ROUGE, 28, Southampton Buildings, London. Spinning spindles.
- 13,997. S. PITT, 24, Southampton Buildings, London. Animalising cotton and other vegetable fibres. (L. Vignon, France, and L. Cassella and Co., Germany.)
- 14,000. G. F. GROSSER, 3, Tokenhouse Buildings, London. Knitting machine needles.
- 14,018. W. BROWN, 19, Bowling Green-street, Leicester. Circular knitting machines.
- 14,014. T. H. STORK, 3, Commercial-street, Halifax. Loom shuttles.
- 14,018. W. T. GOVER and W. E. SAN GARDE, Salisbury. Machines with vertical spindles for making cord laid cords or plaited cords or flat tapes.
- 14,044. R. W. MONCRIEFF, 55, Chancery-lane, London. Jacquard design-reading and card-punching machines.

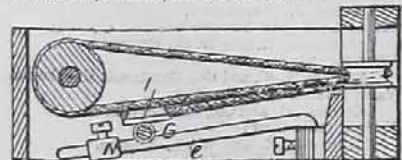
SPECIFICATIONS PUBLISHED.

1889.

- 12,784. IMRAY (La Société Anonyme des Maîtres Colorantes de St. Denis). Colouring matters. 6d.
- 13,131. MATHIEU. Embroidery machines. 8d.
- 13,217. LAKE (J. Leonhardt and Co.). Colouring matters. 6d.
- 13,491. BRIDGE. Drying textile yarns, etc. 6d.
- 13,720. DEHU. Wool washing machines. 6d.
- 14,526. HUMPHREYS and WYER. Lace machines. 11d.
- 14,905. PHELON. Carding engines. 6d.
- 15,129. LAMB and NOON. Striped knitted fabrics. 11d.
- 15,956. JAMES. Circular knitting machines. 8d.
- 16,007. HODGSON and BEDFORD. Looms. 1s. 1d.
- 16,156. HOLLIDAY. Producing azo colours on cotton, etc. 6d.
- 16,258. SCROFIELD. Yarn. 6d.
- 16,311. ANDERSON. Breaking flax, etc. 6d.
- 16,370. BRADSHAW. Scutchers. 6d.
- 16,390. FERRY. Embroidery machines. 11d.
- 16,522. THOMSON. Wool willows. 6d.
- 16,699. PITT (L. Cassella and Co.). Colouring matters. 6d.
- 16,713. SMITH and STAKE. Wool combing machinery. 8d.
- 19,106. JARDINE. Lace machines. 8d.
- 1890.
- 6,908. SCHOLES and WALKDEN. Looms. 8d.
- 9,582. WORMELL. Silk hats. 4d.
- 10,762. BOOTH. Sectional warping machines. 6d.
- 11,005. A. and B. GRATZ. Treating textile fabrics, etc. 4d.
- 11,044. MARTINOT. Bleaching. 6d.

ABSTRACTS OF SPECIFICATIONS.

6,109. April 9, 1890. Driving spinning spindles. P. L. KERRY, Pittsfield, Massachusetts, U.S.A.



Tension arrangements.—The loose tension pulleys I for the driving band are mounted upon collars adjustable along a bar

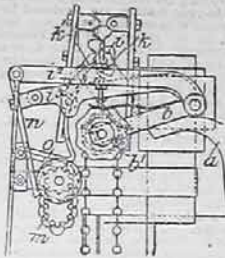
G, which is pivoted at one end in a collar carried adjustably upon an inclined arm similar to *st*, and rests at the other end upon the arm *st*. The tendency of the free end of the arm G to slide down the incline *st* keeps the driving band at the proper tension. The arm G may carry an adjustable weight if desired; N is an adjustable stop. [84d.]

5,865. April 6, 1889. Gull-frames for flax, etc. T. WARSON, Millfort Mill, Belfast.

The rubbers or flaxers are protected from the dust caused by the falling of the faller bars by means of a plate, the dust which collects upon it being removed periodically by hand, or automatically by means of a joggling plate, operated by a projection on the rubber axle, the dust falling into a receptacle. [84d. Drawings.]

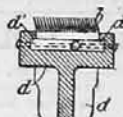
6,542. April 9, 1889. Looms. W. H. CROMPTON and W. HOSANOCK, Canal Mill, Radcliffe.

Change-bar motions.—In the "White-smith" and other looms, the spring lever *a* actuating the pattern barrel frame *b* carries a bowl operated by a cam which is made double for positive action at one part. When the waft breaks a catch is raised and holds the bowl and lever clear of the cam groove, a dwell on the cam ensuring the action of the stop motion. The apparatus is set back by the motion of the spring handle. The lever *h* carrying the catch *i* for operating the cam or wheel *k*, which puts the catches *h*, *h'* in or out of action, carries also a catch *m* for operating the barrel of a tappet chain *s*. The latter acts at times through a lifter *r* for putting the reversion catch *o* out of gear, so that the pattern chain *i* will then proceed to a different part, say, the heading of the pattern. [84d.]

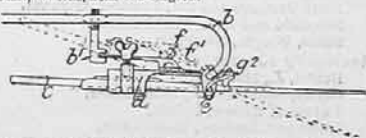


5,884. April 6, 1889. Wire cards and carding engine flats. F. WILKINSON, 18, India Buildings, Cross-street, Manchester.

The carding surface is formed of a series of combs *b* punched or otherwise formed out of thin sheet metal, with spacing pieces *c* secured together in any suitable manner so as to form card filleting. Carding-engine flats may be formed for stringing together, by means of wire, the combs and their separating pieces, and providing the flat so formed with suitable end pieces or shoes, which may be secured to the ordinary cast-iron flat, or be of such a form that the latter may be dispensed with. In the drawing the projecting ends of the combs and of the plates *c* take into grooves *d* in the flat *d*; or dovetailed projections or recesses formed on the combs may engage with corresponding recesses or projections on the flat. The clothing is secured to cylinders and rollers by the method last described, or in any other convenient manner. The spacing pieces may be dispensed with by corrugating or bending the combs. [84d.]



5,885. April 6, 1889. Cutting pile. J. PLATT, The Mount, Walton, near Warrington.



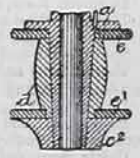
An elongated knife haft *b* is combined with a short holder *d* and means for automatically withdrawing or releasing the knife *c* when it pierces the cloth. In the form shown the knife is held in its cutting position by a lever *f*, pivoted at *f'*, and engaging at its ends with a catch piece *h*, and a trigger *g* respectively. An extra level *e* is secured to either the holder or the haft. When the knife pierces the cloth the trigger *g* releases the lever *f*, the knife and holder turn on their pivots, as shown in dotted lines, and as the haft moves onwards, the knife is withdrawn from the fabric. In a modification the trigger releases the knife and holder from the haft. [84d. Patent applied. Case not yet decided.]

5,931. April 6, 1889. Carding-engines. J. WALMSLEY Victoria-road, Huddersfield.

In order to increase the extent of the effective carding surface, etc., a flexible belt studded with card teeth is substituted for the usual carding cylinder. The belt is stretched over the cylinders, and the flats are guided by rollers and by flexible bands. The belt is prevented from bending inwards at the sides by rollers. A take-in and doffer of the ordinary construction may be used. [84d. Drawings.]

5,934. April 6, 1889. Spinning. T. and F. A. HALL, Lawrence, Massachusetts, U.S.A.

Spindle cottons.—One or both of the flanges, *a*, *a'* are made separate from the body *d* of the wharve, and may be of wrought metal to resist fracture. If the flange *a'* is made separately, the part *c* must also be formed independently of the body *d*. The spindle is tapered as shown, and is provided with a flange *a* to support the bobbin. The wharve is fixed to the spindle in a suitable manner. [84d.]



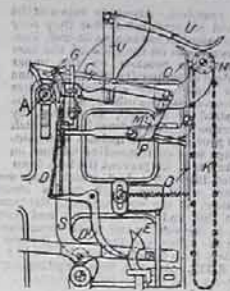
6,022. April 8, 1889. Frillings. C. G. HILL, Arnot Hill, Nottingham.

A machine is described for producing a scalloped frilling with deep indentations by gathering a band of fabric inwards at intervals towards its centre line. [84d. Drawings.]

6,233. April 12, 1889. Looms. T. MARSDEN and J. THOMPSON, Holme Mills, Nelson, Lancashire.

Change-bar motions.

The bevel levers *A*, for operating circular boxes are put in and out of position by levers *D* connected by rods *D* with levers *C*, acted on by the cards. Two or more card cylinders *A* are employed, their motions being controlled by a tappet chain *K*, carried by a cylinder *H*. The latter is turned by a catch *O* on a lever *P* rocked by a cam-worked bar *S*, the chain *K* acting on levers *U* connected by cords with the catches *G* of the cylinders *A*. Two levers between the levers *C* are provided with bent arms *M*, which normally hold the catch *O* out of gear, but when these two levers are simultaneously lifted by projections on the chains of cards, the catch is allowed to turn the cylinder *H*. One cylinder *A* is thus put into and the other out of action until a fresh motion of the cylinder *H* occurs. When none of the pegs of the chain *K* are presented, both cylinders are in action. [84d.]



6,243. April 12, 1889. Looms. J. RADCLIFFE, Clay Pits, Halifax.

Picking apparatus.—The picker *A* is formed with a projection *B* for holding the end of the strap, the parts *D* being inclined, as shown. [84d.]

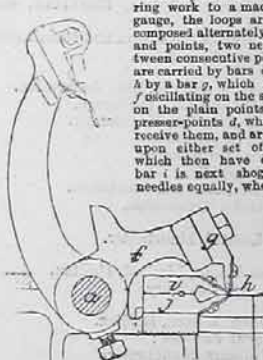


6,258. April 12, 1889. Knitting. E. L. LANG, 19, Foregate-street, Stafford.

Circular machines.—A tubular ribbed stocking leg is made with a flat selvage strip at one end to form the instep and with or without a welt at the other end. The main needle bed may be of any ordinary form, but preferably a disc with radial grooves. The machine is driven by a belt gearing and a conical friction clutch on a main driving shaft, the clutch being put out of action automatically by a pattern chain. The secondary shaft gives rotary motion to the machine through spur gearing, or reciprocating motion through a cam which operates segment and pinion gearing, the change of motion being effected as desired by a sliding clutch on the machine shaft. [84d. Drawings.]

6,289. April 12, 1889. Knitting. T. J. and J. W. KIDDER, Bell-street, Arkwright-street, Nottingham.

Running-on machines.—For transferring work to a machine of a different gauge, the loops are run on to a row composed alternately of bearded needles and points, two needles being set between consecutive points. The needles are carried by bars *z*, *z'*, and the points by a bar *g*, which is carried by arms *f* oscillating on the shaft *a*. The loops on the plain points *a* are transferred to presser-points *d*, which are lowered to receive them, and are afterwards placed upon either set of bearded needles, which then have double loops. The bar *z* is next shogged to space the needles equally, when the loops can be removed by the ordinary hand-bar, and transferred to the knitting machine in the usual manner. [84d.]



6,290. April 12, 1889. Knitting. T. J. and J. W. KIDDER, Bell-street, Arkwright-street, Nottingham.

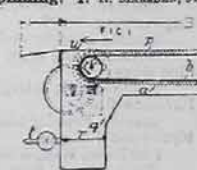
String-bar machines.—In making ribbed work a bar or plate *z* is provided for supporting the frame needles when the thread is being sunk into loops upon them and when the work is being pressed off upon the machine needles. The bar rests upon brackets, and is pivoted to the ends of arms, which are oscillated by cams. [84d. Drawings.]

6,304. April 12, 1889. Spinning. C. OWENS, 88, Great Clowes-street, Lower Broughton, Manchester, and T. Houghton, Richmond-street, Ashton-under-Lyne.

Sight plates and the like for threads.—In order to facilitate the discovery of broken ends, a slip, rod, or roller, preferably of enamelled iron, of white or other suitable colour, is mounted at a short distance behind the threads. The plate, etc., may be permanently fixed, or, as in the case of the mule, may be secured to a moving part of the machine so that it will remain always at a uniform distance behind the threads. When a roller is used the threads may be in contact with it, in which case it is rotated at a surface speed equal to that of the yarn, and in the same direction. [84d. Drawings.]

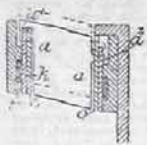
6,306. April 12, 1889. Spinning. T. R. MASSERS, 94, Grousegate-street, Oldham.

Dust trunks for cotton openers and the like.—The lower part of the dust trunk is formed by a travelling lattice *b*, the upper surface of which is provided with transverse ribs or bars *p*, between which the dust, etc., collects, and from which it is discharged into a chamber *q* as the lattice passes round the end pulley *c*. The movement of the lattice is similar to *q* at the other end thereof, from which it is removed from time to time as desired. The doors *r* are provided with balanced doors *r'* having suitable handles *s*, and in order that the dust may be removed without stopping the opening machine, etc., two or more doors *r*, one above another, may be employed, so that the dust is discharged through the uppermost door into a chamber beneath, which may be emptied when desired; *u* are plates to prevent air from being drawn into the trunk. [84d.]



6,327. April 13, 1889. Spinning. W. HUBB, Rochdale, Lancashire. (See next page.)

Shuttles.—Alternate bars *a* of the grid are arranged so that they may be raised or lowered as desired. Projections *a* on the ends of the bars take into notches on the upper edge of supporting plates *e, f*, one of which has alternate notches deeper than the others, and may be raised or lowered, as desired, by means of longitudinal bar *b*, which is provided with inclines which engage with corresponding inclines on the bar *f*. To prevent the bars from tice forces the dust which may accumulate on the lower part of the trunk into a chamber being accidentally raised at the end nearest to the beater, the projections *a* at this end take into slots and circular holes in the plates *e, g*, the slots in one plate being opposite the circular holes in the other, and the slots in the two plates extending oppositely from the circular holes. [84d.]



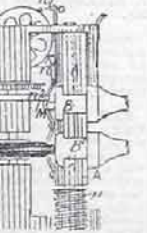
6,352. April 13, 1889. **Spinning.** E. DE PASS, 68, Fleet-street, London.—(G. Carboneau; Fant St. Pierre, Euse, France.)

6,353. April 13, 1889. **Spinning.** E. DE PASS, 68, Fleet-street, London.—(G. Carboneau; Fant St. Pierre, Euse, France.)

6,354. April 13, 1889. **Spinning.** E. DE PASS, 68, Fleet-street, London.—(G. Carboneau; Fant St. Pierre, Euse, France.)

6,355. April 13, 1889. **Spinning.** E. DE PASS, 68, Fleet-street, London.—(G. Carboneau; Fant St. Pierre, Euse, France.)

6,356. April 13, 1889. **Spinning.** E. DE PASS, 68, Fleet-street, London.—(G. Carboneau; Fant St. Pierre, Euse, France.)



shuttle being removable to facilitate this. The shuttles may be driven by rack and pinion mechanism D operated from the rack F, or by other suitable arrangements. The part A is prevented from rising or falling until the required moment by a spring lever-catch M engaging with projections *u, v*, and operated by a catch on the rack F. The arrangements may be modified. [84d.]

6,353. April 5, 1889. **Looms.** J. E. HEFFENSTALL, Stonefield Mill, Minbridge, Huddersfield.

6,354. April 15, 1889. **Imides;** Dyes. O. IMRAY, 25, Southampton Buildings, London.—(The Farbwerke vormals Meister-Lucas and Brüning; Höchst-am-Main, Germany.)

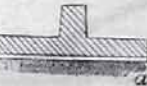
6,424. April 15, 1889. **Imides;** Dyes. O. IMRAY, 25, Southampton Buildings, London.—(The Farbwerke vormals Meister-Lucas and Brüning; Höchst-am-Main, Germany.)

6,456. April 15, 1889. **Looms.** R. BRIGGS-BURY, Bank House, Accrington.

6,455. April 15, 1889. **Spinning.** E. W. WIGLEY, Thornycroft, Worsath, Oldham, and R. PATTERSON, Greengate-street, Oldham.

6,456. April 15, 1889. **Spinning.** E. W. WIGLEY, Thornycroft, Worsath, Oldham, and R. PATTERSON, Greengate-street, Oldham.

6,457. April 15, 1889. **Spinning.** E. W. WIGLEY, Thornycroft, Worsath, Oldham, and R. PATTERSON, Greengate-street, Oldham.



vided with a transverse slot for the passage of the thread, and with a longitudinal slot communicating with the first, and open at the bottom to obviate the necessity for threading the end through the transverse slot. [84d. Drawings.]

PATENTS.
W. P. THOMPSON & CO.
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- Cop-Tubing Apparatus:** Jagger and Co., Oldham.
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- Fire Hose:** Reddaway, F., & Co., Pendleton.
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- Hydro-Extractors:** Broadbent, Thomas, and Sons, Huddersfield.
- Indicators:** Orme, G., and Co., Oldham.
- Jacquard and Card Cutting Machinery:** Devoge & Co., Manchester. McMurdo, James, Manchester.
- Knitting Machinery:** Harrison, W., Manchester.

- Lattices, Pegs, Jacquard Slips, &c.:** Livesey, Henry, Limited, Blackburn. Stone and Burnett, Preston.
- Looms etc.:** Butterworth and Dickinson, Burnley. Dickinson, Wm., & Sons, Blackburn. Dugdale, John, and Sons, Blackburn. Hacking and Co., Bury. Hall, Robert, and Sons, Bury. Hutchinson, Hollingworth, and Co., Dobercross, Oldham. Livesey, Henry, Limited, Blackburn. Pemberton and Co., Burnley. Platt Brothers and Co., Limited, Oldham. Schofield and Kirk, Huddersfield. Shaw, Wright, Stockport.
- Machinery (Cotton):** Bethel, J., Manchester. Curtis, Sons and Co., Manchester. Dobson & Barlow, Bolton. Guest and Brookes, Manchester. Hetherington, John, and Sons, Manchester. Holden, G. H., and Co., Manchester. Horrocks, John, and Son, Manchester. Howard and Bullough, Accrington. Hurst, W., Rochdale. Lees, Asa, and Co., Limited, Oldham. Lord Brothers, Todmorden. Platt Brothers and Co., Limited, Oldham. Stubbs, Joseph, Manchester. Tatham, John, and Sons, Limited, Rochdale. Taylor, Lang and Co., Stalybridge.
- Machinery (Dyeing, &c.):** Dickinson, Wm., & Sons, Blackburn. Heppenstall, E., Huddersfield. Riley, J. H., and Co., Bury.
- Machinery (Silk):** Curtis, Sons and Co., Manchester. Dobson & Barlow, Bolton. Guest and Brookes, Manchester. Holden, G. H., and Co., Manchester. Horrocks, John, and Son, Manchester. Platt, Brothers and Co., Limited, Oldham. Stubbs, Joseph, Manchester. Sykes, John, and Sons, Huddersfield. Taylor, Lang and Co., Limited, Stalybridge.
- Machinery (Sizing, Filling, &c.)** Dickinson, Wm., & Sons, Blackburn. Riley, J. H., and Co., Bury.
- Machinery (Woolen and Worsted):** Curtis, Sons, and Co., Manchester. Dobson & Barlow, Bolton. Guest and Brookes, Manchester. Hetherington, John, and Sons, Manchester. Holden, G. H., and Co., Manchester. Horrocks, Jno., and Son, Manchester. Lees, Asa, and Co., Limited, Oldham. Platt Brothers and Co., Limited, Oldham.

- Stubbs, Joseph, Manchester.
- Sykes, John, and Sons, Huddersfield.
- Tatham, John, and Sons, Limited, Rochdale.
- Taylor, Lang and Co., Stalybridge.
- Patent Agents:** Bosshardt, F. & Co., Manchester, Oldham, and Stockport. Thompson, W. P., & Co., Manchester, Liverpool and London.
- Pickers, Picking Bands, &c.:** Greenwood, John, Todmorden.
- Picker Steepers:** Green, James, Blackburn.
- Pistons:** Lancaster and Tonge, Pendleton.
- Roller Leather:** Meredith-Jones, J., and Sons, Wrexham.
- Shuttles:** Kay, John, Rochdale. Livesey, Henry, Limited, Blackburn. Pickles, Robert, Burnley. Walton and Halstead, Hebdon Bridge. Wilson Brothers, Todmorden. Greenwood, John, Todmorden.
- Sizing and Filling Preparations:** Adley, Tolkein, and Co., Blackburn. Eastwood, James, Manchester. "Gloy" Manufacturing Co., London. Grimshaw Brothers, Clayton, Manchester.
- Smoke Consumers:** Greaves, W. McG., Manchester.
- Steam Traps:** Lancaster and Tonge, Pendleton.
- Tambouring Threads, Braids, &c.** Makinson, E. and W. G., Preston.
- Technological Handbooks:** Bell, George, and Sons, London.
- Temples, etc.:** Blezard, James, and Sons, Padham. Lupton Brothers, Accrington.
- Tools (Machine):** Hetherington, John, and Sons, Manchester.
- Ventilation:** Blackman Ventilating Co., London. Renshaw and Co., Manchester. Rothwell, John, Farnworth.
- Warping Machinery (Sectional):** Bethel, J., Manchester.
- Wire, Gold and Silver:** Makinson, E. and W. G., Preston.
- Wire Healds:** Barlow, H. B., and Co., Cornbrook, Manchester.
- Yarn Assorting Balance:** Thomas, G. and Co., Manchester.
- Yarns, Coloured:** Makinson, E. and W. G., Preston.
- Yarn Testing, &c. Machine:** Wallwork, Henry, and Co., Manchester.