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THE SOUTHERN PLANTER AND COTTON PRICES.

The fall in cotton has, of course, produced alarmist telegrams from New York. We are told that the planters are on the verge of bankruptcy, that large quantities of cotton are hypothecated in the hands of bankers, and that the situation generally is serious. There is, of course, the usual probability that, with the raw material so low, production may again overtake consumption. In the meantime, it is worth pointing out that, notwithstanding the talk so long heard in the United States of planting rice or other crops in place of cotton, the tendency has been for the production to steadily increase. The output in the season of 1889-90, amounting to over 7,300,000 bales, surpassed previous records, and if recent estimates are correct, even this record is to be exceeded. The shrinkage in the receipts of the planters, whose crop, in normal periods, is worth from £42,000,000 to £50,000,000 to the South, will no doubt be great, but if growers, with an increased production such as we have seen, are able to keep up prices on the basis of those paid in past years, they will succeed in doing what has been accomplished in no other industry of vast proportions. The tendency is for prices of all commodities to fall throughout the whole civilised world, and planters must do what spinners and manufacturers have had to do when rates have drooped constantly from year to year—use their brains and economise. Until now America has had by far the best of it in connection with the cotton industry; but if planters will continue to increase their output at the present rate, consumers may have a better time of it. So far, whenever an arrangement has been arrived at to decrease the acreage under cotton, each planter, thinking his neighbour would be more scrupulous, has quietly increased his own, hoping to benefit by the enhanced prices that follow a reduction in the total yield. In thus endeavouring, as we fear is only human, to overreach his neighbour, the Southern planter has simply made matters worse. At the same time, while these considerations are worthy of being noted, it should be borne in mind that the very low prices of 1845, when Middling Orleans descended to 3¾d., and the stock in Europe reached 1,217,000 bales, or twenty-seven weeks' consumption, led to a serious reduction in the rate of production, the imports falling from £626,000,000 in 1843 to £401,000,000 in 1846, and £364,000,000 in 1847. In comparing the prices of 1845 with those of to-day, it must, however, be remembered that at the former period transportation and other charges were much higher than is the case now. It is true that the planter had slaves' labour, but he was compelled at any rate to feed them. The lack of railway communication was also a drawback, and ocean freights were much higher than now.

JUTE PRODUCTION AND JUTE CONSUMPTION.

In endeavouring to arrive at a correct estimate of the condition of the jute trade, and its probable course in the future, it is worth while examining into recent statistics as to the production and consumption of the fibre. The latter has, no doubt, increased at an enormous rate, while the output of raw material in recent years at all events does not appear to have moved upwards in corresponding ratio: thus, 2,364,400 bales were shipped to Europe in 1882-3, while six years later the quantity was 2,451,000 bales—not a large increase. Out of a total consumption of 535,400 tons in 1883, India alone required 107,000 tons, Europe taking 321,000 tons. The figures given for India are much below the present consumption, and with the United States increasing its jute production, in common with the Continent, it is evident that there is no likelihood of a falling-off in the demand for the fibre. The value of American raw jute imports was 3,249,900 dols. in 1890, against 2,850,000 in the preceding year. In the neighbourhood of Calcutta alone there are twenty-four factories, employing 49,000 persons, and consuming 143,000 tons of jute annually, according to the figures for 1890. The position of the jute trade appears, in many respects, to resemble that formerly seen in the cotton industry, when the consumption has overtaken production. The high rates now paid for the fibre should, however, have the effect of increasing the acreage under cultivation, and when that result is arrived at a further fall in prices may be looked for. At present prices the possibility of manufacturers competing with other textiles is rendered increasingly difficult. In Dundee itself doubt appears to be entertained as to whether Dundee possesses a sufficient stock of jute to last until the arrival of the new crop in October next. The consumption is reckoned at 25,000 bales per week, and unless spinners have command of a million bales to last them during the forty weeks that will elapse before further arrivals come to hand, further stoppages of machinery will be necessary. On the night of the 31st December last, there were in the public warehouses of Dundee, according to the estimate of a reliable authority, 195,000 bales, and in the private warehouses belonging to spinners 255,000 bales—a total of 450,000. Including the quantity lying in sheds in the harbour, there would be about 530,000 bales in Dundee. Other estimates place the quantity at 600,000 bales, and this, including the 300,000 bales afloat, would bring the total up to 900,000. With the stoppages caused by the dearness of jute, some reckon 24,000 bales to be a liberal estimate of the weekly consumption. At this rate the stock would last forty-four weeks, and would therefore more than suffice to carry spinners over until the arrival of the new crop. Between the lower and the higher estimates there is a margin sufficiently wide to leave room for doubt as to the future. The fact that jute is so dear, however, will possibly check the rate of consumption. At the same time it is evident that there is room for an increase in the jute crop, and spinners would, no doubt, be glad to hear of its extended cultivation.

COTTON WONDERS.

There was once a certain old Fallacy, who made it his business to denounce the multiplication of machine power, and who was always deploring the increase of manufactures, because, as he said, there followed in consequence a shrinkage of employment. This Fallacy died several years ago, and was buried; but some of his children are still living. They rarely venture, however, to appear in public, or to offer any comment in print upon the jubilant calculations of the enhanced value and extent and productiveness of machinery, in which men now and again find gratification. But if anything could tempt any of these descendants of old Fallacy to come forward again, it would be a paper by Mr. George H. Knight on "The Relation of Invention to Conditions of Life," in the current number of the *Cosmopolitan*. Such a subject could not be treated without some sketch of textile progress, and, without any slight to other materials, it is natural enough that cotton-trade developments should be selected as representative of what is called the new birth of clothing manufacture. Often as we are treated to comparisons and contrasts, there is too much room for them to become stale, and there is an "infinite variety" in the story of cotton changes, which will not be likely to become tiresome. At both sides of the cotton bale there have been amazing transformation scenes. There, the Whitney gin, of which the centenary will shortly be celebrated, established the Southern States; here, the inventions of Arkwright, Crompton, Hargreaves, and some others, with Watt, made Lancashire. The two multiplied together gave such a manufacturing sum total as no other single industry can equal. But before the introduction of the cotton gin, the crop was regulated, not by what might be grown, but by what could be cleaned after cultivation. The revolution thus brought about was well expressed in a legal argument about fifty years ago by Mr. Seth C. Staples, in which he said, "I recollect very well, sir, when I was a small boy, my mother purchased raw

cotton for two shillings and sixpence per pound, and I used to help her pick it, winter evenings. Now you can purchase an article, picked as clean as possible, for six cents a pound." That was in 1840, and the quotation of Mr. Staples —whose name, by the way, was not a bad one for a cotton advocate—was rather below the market price for "fair" cotton in that year, although near enough to mark an astonishing difference in value. The ultimate result has been, on the computation of Mr. Knight, that the cotton crop of 1891 was 34,000 times greater than that of 1792, when Eli Whitney grappled with the picking problem. Turning next to the other side of the bale, Mr. Knight glances first at the introduction of the spinning wheel, which "enabled the spinsters of Europe to operate about five times more expeditiously than was possible with the old distaff and spindle of Homeric times, and fifty times more expeditiously than the Lapp woman, who, to this very day, continues to twist by rolling with one hand upon her knees a bundle of threads drawn tightly backward with her other hand, and who is thus far more primitive in methods than her ancient neighbours, whose spindle whorls crowd the deposits of Quaternary Europe." Next, taking a pair of mules, each with 1,230 spindles, and attended by one man and a boy, supposing, further, that the speed of delivery from the spindles was no greater than that of the single spindle of the old spinning wheel, Mr. Knight arrives at his favourite comparison by figures, and concludes that in round numbers "the output of each mule operative is 600 times that of one using the spinning wheel, about 3,000 times that of the mediæval spinster with her distaff and loaded spindle, and perhaps something like 30,000 times that of the unprogressive Lapp woman." Whether this statement and deduction is quite fair to this unhappy Lapp woman is more than we can decide, and further estimates of her barbarism, based upon the real speed of present spindles, may be left to the reckoning and reflection of any who care to carry out this sum in manufacturing progress. The figures, as they stand, are sufficiently striking for recollection, and are, indeed, significant enough to bring up our old friend Fallacy from his grave.

The Auditing of Spinning Companies' Accounts.

Our Oldham correspondent writes: "The Oldham 'limited' mind—far from narrow, notwithstanding—is just now very much exercised in respect to the persons who are appointed to audit the accounts of spinning companies. In many respects those entrusted with the management of these concerns have been known to break away from conventionalities, and the shareholders have also willingly lent their aid in new departures. From the first the 'limiteds' have steered somewhat clear of professional auditors, although, of late years, by a process of development, professional accountants have received appointments to auditorships: but so long as they have been 'one of them' no real objection has been raised. But it is not in this direction that the 'limited' mind has been turned; it is to that important personage the 'limited' salesman, who has, during the past few years, been picking up these appointments here and there. The feeling is growing strong that the election of salesmen to these positions is a great mistake, because it places them in the position of being able to draw information from one company which can be used for that which pays them the greater remuneration. Indeed, it is alleged that at least in one instance a salesman has been caught copying the names of the customers of the company of which he is an auditor; and for what purpose? What, indeed, unless to enable him all the better to carry on his calling? Other cases can be given of how this overlapping, as it were, has operated for or against companies. There is no doubt that such appointments are fraught with consequences that are likely to act detrimentally to concerns where such an anomaly is allowed to exist. There seems, however, to be an awakening to the dangers of the system, and there is every prospect that the occupation of salesmen as auditors will be very much curtailed in the future in the town of spindles and smoke."

French Trade in 1891.

Sir J. Crowe's annual report on the Trade of France, which has just been issued, is of peculiar interest at the present time. The French copy of the McKinley tariff being now an established fact, it is of importance to know what volume of trade in the various departments is likely to be affected by the measure. The demand for raw materials increased largely last year, wool imports being over 195 million kilos. as against about 176½ millions in 1890, the figures for cotton being 176½ and 146¾ millions respectively. Pure and waste silk also increased from 10,912,000 to 11,784,000 kilos. As far as wool and silk imports are concerned, the increases may be set down to the uncertainty which up to the last moment prevailed as to the result of the opposing claims of Protectionists and Free Traders, manufacturers in the meantime taking care to lay in good supplies. It is important to note that by the new law France practically grants a bounty on exports of cotton yarns used in silk and other mixed goods. The old system of temporary admission of yarns has been abolished, but on yarns entering France and used for silk and cotton mixtures, dyed cottons, braids, laces, muslins, and net, a return of 60 per cent. of the duty is allowed. No evidence of origin is required, so that the bounty will be paid on home as well as foreign yarns. Imports of fine counts of linen yarns increased greatly last year, when the value was 8,000,000 francs, against 6,000,000 in 1890, Belgium being the principal source of supply. Woollen yarns also increased from 10,000,000 francs to 14,000,000 francs during the same period. There was an increase of 2,000,000 francs in purchases of fine linens, silk, cotton, and woollen piece goods also shewing substantial advances over those of 1890. Imports of silk goods increased from £2,560,000 to £2,880,000, the principal increase being in pure plain silks, chiefly supplied by Swiss manufacturers. There was a substantial growth in woollen purchases, the increased share of business obtained by this country being estimated at one million sterling. Hosiery displays the next most important increase—156,120 kilos. in 1890 to 171,968 kilos. in 1891. An important decrease is apparent in mixed stuffs, in which England loses in 1891, as compared with 1890, 1,743,000 kilos., or £540,000. The total imports of woollens of all kinds are illustrated by figures as: 1890, £2,680,000; 1891, £2,920,000. The speculative accumulation of cottons by importers of British goods is manifested as follows:—

Articles.	1890.	1891.
Cotton—	Kilos.	Kilos.
Plain	655,982	985,824
Prints	426,006	465,282
Oilcloth	1,409,349	1,632,469
Velvet	150,665	223,536
Cords and moleskins	93,425	96,247

These and similar increases in the imports from other countries, balanced here and there by reductions, bring the figures for cotton of all kinds to the following values:—

1890	£1,639,320
1891	1,846,120

The exports of French cottons were never so low since 1885 as they are now. They are lower than those of 1890 by £200,000. Silks were lower by £880,000, woollens by about half as much, linen yarns by £40,000, while made-up garments and millinery fell over to an even greater extent. We have already discussed the causes which produced the decline in the silk trade of France and other countries last year, so that further reference to the matter is not called for. The summary we have given of the results achieved by French manufacturers and spinners last year indicate that the position of the textile trades in the Republic is not calculated to create a feeling of confidence.

The Condition of the Jute, Linen, and Cotton Trades, as Affected by Prices of Raw Material.

The extraordinary position in which the markets for various raw materials consumed in the textile trades are now placed, has already been briefly referred to in these columns. We have spoken also of the condition of the silk market, which is now experiencing the effects of prices lower than have been known for half a century. Our Dundee correspondent has from time to time indicated the nature and extent of the changes that have taken place in the staple trade of the Forfar capital, and some interesting observations may be founded upon the facts we have already published. In the first place, the extreme dearness of jute, coming as it does at such a juncture as the present when cotton is cheaper than ever before known, may have the effect of increasing the consumption of the latter for certain purposes at the expense of the Indian fibre. In 1890 the average value of jute imports was £13⅛ per ton. Towards the close of last year quotations were roughly £17 for first marks, and the alarming fact had been revealed in the middle of the month that the Customs entries for the first sixteen days did not exceed 190,000 bales, against 264,000 in 1890. Towards the end of January it was expected that £25 would have to be paid for first marks before the end of the season, and £23 had been refused for 7's 3,000 over C. Nov.-Jan. Cape. Calcutta cables were of an alarming character, and the trade naturally became demoralised; while short time, as is usual under such circumstances, was strenuously advocated by all except those possessing large stocks of material bought when prices were lower. Cotton at 4d. a pound means £37 a ton, and a comparison of the present rates for jute with this figure will shew how the margin between the cost of the two textiles, usually so large, has been narrowed down. We have taken a higher rate for the Lancashire staple than present quotations, so that the difference is even smaller than the figures given indicate. That a largely increased consumption of cotton goods must result from the present condition of the markets is all the more probable as prices of many classes of linens are dear, while the demand is feeble just now, some of the Scotch mills, according to the statements of agents, being unable to keep machinery fully employed owing to the insufficiency of the orders their representatives are sending home. Quotations may of course be increased at will, but it is not so easy to persuade buyers to pay them. We have it on the authority of a well-known manufacturer that prices of linen thread would have been advanced long ago had it been considered safe to do so. The dearness of flax would have justified the step, had it not been for the fact that there are two competitors with which linen thread houses always have to reckon—cotton on the one hand, and silk on the other. Since the utilisation of silk waste, prices of silk sewings have been greatly

reduced, and although they are still largely above those of linen, some buyers, it is feared, would resort to their use in case quotations of the latter were advanced further, while others would take to cotton. The want of expansion shewn by the linen trade, which may almost be considered as a stationary industry, contrasts vividly with the increased consumption of cotton all over the world. Another circumstance which should bring at least a grain of comfort to the cotton trade is that the average value per yard of cotton goods exported has shewn a steady, though small, growth during the past three years, the rate in 1889 being 2·40d., as against 2·53d. in 1890, and 2·56d. in 1891. It is true that in 1815 an average value of 1s. 5¼d. per yard was obtained, but the raw material was dearer, and cost of production higher. In 1845 the average was 3 15/16d.; in 1859 3 7/16d.; and in 1871 3¾d. per yard.

The Print Trade.

Calico printers, despite their grumbling, appear to be getting better prices for their products abroad, although there was a decline last year in the quantity shipped compared with the two preceding twelve months. The figures are given below, together with a comparison, more curious than valuable, shewing the total output of prints in England and Scotland in 1800 :

Home Outputs,	Exports Only.		
1800.	1889.	1890.	1891.
34,526,133	948,293,100 ..	950,078,000 ..	904,158,100

In 1829, 128,340,000 yards of prints paid duty, so that we may reckon the foreign exports alone, 60 years later, as being nearly eight times larger than the total output at that time —a significant comparison indeed. The value of recent shipments, amounting to £11,224,232 in 1890, fell to £10,841,216 in 1861, a decrease of £383,016 in value and 45,919,000 yards in quantity, or about 5%—a serious matter in view of the inelastic condition of the home demand. The average values received per yard have, however, increased of late. In 1889 the rate was 2·76d., in 1890 it had grown to 2·83d., and last year the figure was 2·87d. It is worthy of note in this connection that the same remark applies to dyed goods and greys, the former being nearly 4d. last year, as against rather less than 3½d. in 1889. The explanation of the increased value per yard of the prints shipped last year in comparison with the exports for 1890 and 1889, is, of course, to be found in the fact that while purchases from the larger and low-priced markets of the East have fallen off, other markets, which usually take higher-class goods, have increased their consumption.

The French Tariff on Machinery.

The fact that France is one of the largest buyers of English machinery in the world, her purchases during the past three years having been valued respectively at £918,000, £1,192,000, and £1,343,000, lends a special interest to the new tariff rates now imposed on imports. The rates on textile machinery, with the exception of lace and net machines, the duty on which is reduced from 10 to 5 francs per 100 kilos., have been increased. On carding engines, not clothed, the duty has been raised from 9 to 12 francs per 100 kilos. Card-clothing machinery is raised from 6 to 10 francs; spinning and doubling machinery from 5 to 12 francs, or an increase of 140 per cent.; and weaving plant from 5 to 8 francs per 100 kilogrammes. These figures indicate enormous increases in the duties which textile machinery exported to France will in future have to bear. What the ultimate effect of such changes will be time alone can accurately tell. Past experience has, however, shewn that tariffs have not been able to keep English machinery out of France, the manufacturers of the Republic preferring to use it, notwithstanding its increased cost. During the enquiries held by the *Commission de douanes* in anticipation of the passing of the Tariff Bill, it was stated repeatedly by manufacturers that owing to the tariff on machinery they had to earn profits on a capital larger than would otherwise be necessary. English machinery had to be imported as before; and it will no doubt be found that French manufacturers prefer to continue using it even after the latest efforts of Republican protectionists.

The Unjust Incidence of the Factory Law.

The following is a report of a prosecution for a breach of the Factory Acts, which we extract from the *Manchester Guardian* of Thursday:—

Yesterday, at the Heywood Police-court, before Alderman Isherwood, Councillor Hodgkinson, and Mr. T. Popple, an interesting case affecting weavers was heard. Messrs. John Gleave and Co., cotton manufacturers, Hooley Brow, Heywood, were summoned for employing three women during the time set apart for meals. Mr. Pearson, the inspector of factories, said the defendants were summoned for a breach of the 17th section of the Factory and Workshops Act, by employing the three women at breakfast time. He found the women taking off the "pieces" from the looms at ten minutes past eight on the morning of the 15th January. Mr. George Fitton, the manager, admitted that the women were working, but said he had told them they were not to do so. The women also told Mr. Pearson they had been so told. Mr. Hodgkinson asked Mr. Pearson whether he could not prosecute the real offenders in cases like that.—Mr. Pearson said he could, but the Act, in section 87, gave the employers power to prosecute offenders themselves.—Mr. Hodgkinson: They would not do that.—Mr. Pearson added that he had received several complaints about working during meal times in that district, and he had received definite instructions from the Home Office to take proceedings.—In reply to a further question of Mr. Hodgkinson's, Mr. Pearson said that if he were an employer he should summon the workpeople who were the actual offenders.—Mr. Hodgkinson: "But as you are not an employer you don't know the animus that would bring you." Later Mr. Hodgkinson also pointed out that the matter had been discussed in Parliament a little while ago, and it was then generally admitted that the law on the point was an almost impossible one.—Mr. Pearson admitted that those cases were most difficult to deal with, but his superiors had given him orders to take proceedings, and he had decided that it was the proper thing to summon the employer.—Alderman Isherwood said they believed the firm had done their best to prevent working, and under the circumstances the Bench had decided to simply order them to pay costs.

This prosecution shews most impressively the iniquitously unjust conditions under which the employers of the hundreds of thousands of workpeople in England's greatest industry are compelled to carry on their business. We have only space to just enumerate a few of the points involved. In the first place the law is unjust in that it renders the employer liable to a penalty for the breaches of the law committed by his workpeople. We pointed out all these defects of the Bill when before Parliament, but neither Sir Henry James, with all his love of justice, nor any other member, could be induced to rectify its defects. An election was approaching, and we suppose the support of the trades-unionists and the votes of the operatives were at the bottom of their refusal. A grand position for the members of the oldest and noblest legislative assembly of the world to occupy! But the law is not alone in fault. The factory laws are practically administered from the Home Office, and for their proper conduct Mr. Matthews is ultimately responsible. Their administration is directly controlled by the Chief Inspector, and the gentleman who occupies that position at present is Mr. Whymper, to whom reports of infractions of the Acts are sent by the sub-inspectors. It appears from the evidence of Mr. Pearson, who, if we mistake not, is a nominee of the trades-unionists, that several complaints had been received by him about working during meal times. These, we suppose, had been stimulated by the circular of Mr. Thomas Birtwistle, J.P., which we published a fortnight ago. Thereupon Mr. Pearson sets to work with renewed zeal; he must "run someone in," otherwise the powers that appointed him may frown. He goes to a mill, and finds three women weavers pulling out their pieces from their looms, actually after having been ordered not to do so. They are clearly, therefore, the law breakers, and the Act gives Mr. Pearson the power to prosecute them for its breach. Yet he deliberately ignores these offenders and prosecutes their employer. We should like an explanation both from Mr. Pearson and the authorities in London of the reasons why they took this course. If Mr. Pearson took it of his own initiative he ought to be immediately dismissed from his post, as having demonstrated beyond cavil his utter incompetency to perform the duties of the office. If he acted in summoning the employer on instructions from the Chief Inspector, it is quite time that that gentleman was given to understand his tenure of office will be a short one if this is a sample of his work. And we may further say that the case is one to which the attention of Mr. Matthews should immediately be drawn, as neither for the sake of Radical nor Tory gaining the votes of the trades-unionists will the trade submit to be sacrified on the altar of the democracy. We regret that the bench of magistrates, though partly, was not fully alive to the importance of the case, which it ought to have dismissed with a severe rebuke to the Inspector. We trust the various benches of magistrates in the country will compel inspectors to do their duty. Such prosecutions are a disgrace to everyone concerned, and ought to be put down.

The Proposed New List for Cord Cutting.

Somewhat singular to say, the counsel we tendered last week to the operative cord cutters of Manchester and Salford has been more or less endorsed by their own secretary, Mr. A. Buckley, of Oldham. It appears from a speech of his in the operatives' official organ, that at a meeting of cutters held at Manchester, on Friday evening (the 12th inst.), he urged upon the workers to "exhibit calmness, coolness, and fairness," and "whatever they did, to let it be done in such a way that they could look back upon it with pleasure and say they had done their best and drafted a list which was fair and just all round." He also urged upon them "not to be impulsive." Such language coming from a trades-union official is extremely gratifying; it looks almost like throwing oil upon the troubled waters. In this instance, however, we presume it is holding in check some of the workers, who probably manifest a great desire to kick over the traces. Mr. Buckley, it seems, also told his hearers that "if anything was worth doing at all, it was worth doing well"—a truth which the workers for their own credit's sake should place high in their trades-union creed. Further, Mr. Buckley rebuked some of the "undertakers"—their employers—for expressing readiness to "fight" those in their employ. He considered it too early in the day to begin to shew a bellicose disposition, and it would be soon enough to cry "fight" when all their negotiations for an amicable arrangement had failed. The very mild and sensible advice of Mr. Buckley is very much to be commended. It appears from an interjectory remark at the meeting that the cord cutters were some years ago getting "just as much again" as they are to-day, while another speaker placed the average earnings all the year round at about 15s. per week. Certainly this is a small average

for men, especially if they have been in regular employment. But it should be recollected that we are quoting from a purely *ex parte* statement from the workman's point of view, and probably the employers' version might throw an entirely different complexion on the matter. It seems, however, that a list was approved, and ordered to be forwarded to the merchants. Nothing, however, can be gleaned from the report as to the advances sought to be obtained coincident with the new list and conditions, although Mr. Buckley could "not see that the prices in the list were excessive taking them all round." However, there is every indication that an advance is sought to be obtained, and, as was remarked, the merchants might probably then, when they received the lists, say that they were asking for too much. At any rate, the operatives seem bent on conducting their part of the negotiations with becoming dignity, and if they do so they cannot but win the esteem and admiration of the merchants.

More Trades-Unionist Tactics.

In a strike of weavers at Nelson the usual system of picketing has been adopted, and, as might have been expected, has borne its usual fruit. Three different persons have been assaulted in a disgraceful manner, and summonses for the offences were taken out. On the cases appearing before the courts, they all collapsed, it being strongly evident that the complainants had been "got at" by the emissaries of the unions, and so dealt with, either by bribery or terrorism, that they were led practically to refuse to give evidence on their own behalf. Of course such a *fiasco* resulted in an immediate renewal of disturbances, and the same day more assaults were committed. Things are coming to a pretty pass in this country, when justice, from its legislative fountain through all its course down to its issues from the magisterial bench, can be fouled in all its stages. It would be difficult to find a period in history when matters were more corrupt than they threaten to become under the influences that now generally prevail.

Protection in Germany: The Case of Cotton Yarns.

Although a few Germans are calling in question the expediency of a protective policy, as was shewn by some remarks extracted a few weeks since from one of our Continental contemporaries, others are dissatisfied with the limited extent, as they think, to which protectionism has been carried in the Fatherland, so far, at any rate, as cotton goods are concerned. Only one class of goods, we are told by one of these opponents of Free Trade, enjoys adequate protection under the present German system, —that is, yarns up to 30's counts. The history of these yarns is said to supply a striking proof of the beneficial results of protective tariffs. Before 1879 these goods had to contend with sharp competition from England ; 16's to 20's warps more especially entering in large quantities from England, were then able successfully to compete with such German yarns in spite of the existing tariffs. Since 1879, however, the position has been quite reversed; the factories spinning these counts have been assisted by what our contemporary calls "more rational protection," and this class of goods can now be bought, it is alleged, as cheaply in Gladbach as in Manchester, if, indeed, not more cheaply. The natural consequence is that Gladbach fabrics can successfully enter into competition with English goods in England itself, as is shewn by the 2¼ million lb. of cotton goods annually exported to the British Isles. It is strange that our Teutonic contemporary does not appear to see that this successful competition is due quite as much to English Free Trade as to German protectionism.

Inequalities in Trades-Unionist Policy.

It has frequently been our duty to draw attention to the fact that the Trades-Unionist leaders in connection with the cotton trade are destitute of all sense of equity in the conduct of their associations. This is greatly to the injury not only of employers but also of their own constituents, and of the public. Of course it would be a waste of ink and paper to appeal to them in the interests of either the first or the last-named, but it may just possibly be deemed worthy of their attention if we point out the fact that by their short-sighted yet imperious and supercilious decisions, they are inflicting a grave injustice upon the operatives of several districts. Two and a half years ago we shewed in a forcible manner how the existence, side by side, of the Blackburn and Burnley Standard Lists worked most detrimentally to the interests of the Blackburn weavers. That exhibit had the effect of rousing both the Blackburn employers and operatives into a spasm of great activity, during which the details of a new and universal list were drawn up and agreed to by the representatives of both sides. After a few meetings, however, in which the leaders did not lead, and the guides did not guide, though the weavers of Blackburn voted for the acceptance of the revised terms the new list was rejected. It would be interesting to learn whether or not there were any, and what, secret influences brought to work to induce this result and continue the monopoly of the Burnley district in the manufacture of the printing and other light-sized fabrics, which are the easiest and the best to make of any in the trade. And it would be equally interesting to learn why the Blackburn operatives, who were most concerned in the alterations the new list would make, and were willing to accept them, did not carry out their resolution irrespective of the voting of the insignificant centres that were finally permitted to rule the decision. A proper or proportionate arrangement of the voting power would have altered the result and removed from Blackburn industry the trammels in which it has been struggling now for so many years. Hence the new list was shelved, and as a consequence Burnley and Nelson rapidly extend and Blackburn decays: for it is nothing less than to decay when in sharply competing times like these a town ceases to progress. For a community to work in such trammels as those in which the wisdom of the trades-union Solons have bound it, is like entering to run a race with legs so tied as not to permit a stride of more than 18 inches, while competitors are left free. Of course the competitor who is free runs clean away from the one who is leg-bound, which is what the districts named have done.

There is, however, also another list that is operating disadvantageously to the Blackburn and East Lancashire districts. That is the spinning list. In the course of the changes that have arisen in the construction of machinery and in the character of the trade of these districts, it has come about that in long mules, spinning yarns from 50's upward, the Blackburn spinners' list is from 5 to 7½ per cent. above the parity of that of Oldham in its results. The principle of payment in the Blackburn list is by the weight produced; that of Oldham by the length spun as measured by the indicator. The results work out as we have stated. On several occasions the operatives of mills working under the Blackburn list have demanded the Oldham list, and when their employers have gone to considerable expense in fitting up their mules with indicators, after a short experience they have demanded to go back to the Blackburn list. We could name several of the mills in which the indicators have had to be removed, and are now, we presume, lying idle in the store rooms of the mills. One case, we may mention, is that of the Accrington Spinning Company, to an existing strike at which place we recently drew attention. When the new mill of this Company was started, about 12 months ago, arrangements were made at the request of the operatives to adopt and pay on the Oldham plan, by the indicator, and preparations were made accordingly. When the time came, however, the engagement was repudiated by the operatives, who refused to work by it. In this manner the workpeople, under the guidance of their present leaders, make and break engagements at their pleasure. Need any wonder be felt that under the incidence of such an antiquated list as that of the spinning trade in East Lancashire, and such conduct of the operatives, spinning is a declining industry? We think it would be a wonder if it was otherwise. We know of only one new spinning mill erected there for a long time past—that of the Accrington Company just mentioned, the proprietors of which we have no doubt would be very glad to have their money in their pockets again. The result is that Oldham and South Lancashire generally, which is working under much more liberal and enlightened conditions, is gathering to itself the whole of the spinning trade, although a large economy could be effected by producing yarn on the spot, even if it was only weft consumed there, which certainly ought, for many reasons, to be done. Could employers work under equitable conditions, it is probable that nearly all the weft, and at least a portion of the twist, would be spun there.

But this record of inequity and perversity is yet far from being exhausted. Some time ago, we drew attention to a strike ordered in several Blackburn mills in which. Owing to the depressed conditions of trade the employers could not obtain work for their wide looms, and therefore, in order to provide the weavers upon the latter with something to do, and purely out of consideration for them, they offered them a share of the work in the narrower cloth, which, in the ordinary course, would have been made in the narrow looms, asking the weavers if they would have such at the standard wages, which they were glad to accept. But the wise men of the Weavers' Association in Clayton-street, hearing of the matter, at once intervened, and ordered strikes at the mill referred to, refusing even to permit their members to weave these cloths in the wider looms, even if they themselves desired it, without payment of the premium provided by the list. Of course the employers withdrew the work from the wide looms, and the weavers upon them had their earnings for the time being reduced from 30 to 50 per cent., as against 3½ to 5. If the operatives choose to make such sacrifices as is implied by these illustrations it is their own affair, but we think employers have a right to ask for some semblance of consistency.

Another illustration. In the Colne and Nelson districts, which during the past few years have become the leading centres of the manufacture of coloured cotton goods, there has for some time been a certain amount of friction between the employers' and the operatives' associations. The particular point of difference is that, owing to the depressed condition of trade, the former have not always been able to find work for their multiple box or check looms, and have consequently supplied them with striped or plain coloured work, for the benefit of the weavers, rather than for their own. As these box looms, encumbered with their heavy mechanism for checking, do not run as quickly as the plain cloth looms, the weavers' earnings are naturally not quite as high. The weavers' society has therefore demanded an advance of 20 per cent. upon plain cloth prices when plain cloths are woven in box looms. This the employers have steadily refused, on the ground that it cannot be afforded, and that the practice under which they have been working hitherto is mutually beneficial, which is a very common-sense view of the facts. A difficulty existed on this matter last week with one firm, and at the request of the operatives the employers interviewed a deputation, at which it is reported they agreed not to give any weaver plain cloths to weave in check looms unless they asked for

them. This seems to have been received as a satisfactory solution of the difficulty, though we have our doubts about its working well, notwithstanding that it is the only sensible one. If, however, it should be accepted as such, we would again point out how inconsistent are the decisions of the Northern Counties Association of Weavers' Unions in refusing to the Blackburn employers arrangements which they readily concede to those of Colne and Nelson.

But the above is not the most flagrant instance of inconsistency now occurring. From some cause or other it seems that a dispute has arisen in the coloured weaving district of Radcliffe, which has long been at a standstill so far as the extension of trade is concerned, and the dispute to which we refer affords a glimpse of the cause. As our readers would gather from our recent notice of the case, it substantially arises from an attempt by the employers to reduce wages. Finding that the Colne and Nelson employers are taking all the trade, they have naturally investigated the matter, and found it to result very greatly from the great difference between the wages paid in the two districts. This has led them to reduce their wages list, and they offer to their weavers a rate that shall be 10 per cent. above that of the Colne and Nelson district! Of course for doing this they have been denounced as the most unspeakable oppressors that could be found. The weavers, however, not being affiliated to the large organisations of East Lancashire, the latter must not be held responsible. In its weakness the members of the Radcliffe Association have called upon East Lancashire to come over and help them, and the latter, with the true instinct of trade-union nature, promptly responded. As the crisis of the dispute was rapidly approaching, when either submission or a strike would occur, they demanded a month's truce in order to "examine" the question. Feeling strong in the justice of their position, the employers granted a fortnight, which is to-day near expiring. The public will, therefore, soon see what it will see, but to predict what that may be would obviously be very imprudent. We would again ask, however, on what grounds the employers of Radcliffe, Farnworth, Pendleton, and other districts, should be required to pay 10, 15, or 20 per cent. higher rates than are being paid in Colne and Nelson under the sanction of the most powerful weavers' association in the country? Is it not time, and high time indeed, that a general list of universal application should be drawn up for the weaving of coloured goods, and all districts put upon a level? And when drawn up that it should be enforced, not shelved like the Blackburn one to the advantage of a particular district and the detriment of all others?

This review of the inequalities and inconsistencies of trades-unionist policy is an important matter, not only to the operatives and employers affected by it, but to the general public of every industrial or manufacturing centre. Trade cannot expand in the localities that are thus harassed or strangled by the imperious regulations foisted upon them by a set of men who cannot, by the extremest courtesy, be said to be men of wide intelligence and breadth of view. The consequence is that, owing to the want of this expansion, the increasing population is driven away from the harassed districts, and naturally drifts to the places where employment is to be found, namely, the Burnley, Colne, and Nelson districts. Hence the enormous increase of the population in those localities, and the great concentration of trade that is taking place there, to the advantage of every interest in them, and at the cost of every interest outside of them. From one little district alone that we could name in Blackburn over forty emigrant weavers, winders, etc., have recently winged their flight to the Marsden valley. Is it wise, by a policy such as this, to concentrate the population in one or two spots when it might, to the personal benefit of every worker, be spread over a wide area? Is it wise or in the interest of the workers to depreciate the value of all investments in mill and cottage property, much of the latter of which belongs to themselves? Money once sunk in the bricks and mortar of mills and houses cannot be withdrawn, and if its value be destroyed it means there is so much subtracted from the capital fund of the respective districts, on which the employment and prosperity of the operatives, their employers, and the general interests of the community depend. Lancashire can only hold its own against its many competitors, fair and unfair, by the most rigid economy in every process of manufacture, the greatest care to prevent waste on the part of the workers, and the prevention of every atom of waste in the employment of capital. The matters to which we have referred shew there is great room for reforms in these respects, and it is quite time that those most deeply interested in them—namely, the working men and their employers—should recognise the unity of their interests, and devise some means, better than those that now exist, for preserving if not enhancing them.

Bleaching, Dyeing, Printing, etc.

LEVEL DYEING.

The first condition for successful dyeing is that the fibres to be treated are absolutely clean, and free especially from every trace of fat. A careful washing is not enough for this purpose. This cleanliness is undoubtedly the condition of making the dye to hold on and not to come off the fibre, and thus cause a loss of dye-stuff, soiling the whites, and giving rise to trouble between the dyer and finisher; it is also the condition for making the dye even. The washing must be done at the boil, so that the fibre is well wetted out, and all the little air-bubbles adhering to it are driven out. But this is not enough: it must be accompanied by a scouring operation, not only in the case of fibres of which the dyer does not know whether they have already been scoured, but also when they have already been scoured and bleached. The kind of scouring that the fibres receive in this case need only be of a comparatively light character, but it must never be omitted, even for dark shades, as the traces of grease which the fibres contain are the causes of nearly irremediable stains in the dyeing operations. Even in dyeing black wool it is of the greatest importance to have the fibre suitably scoured.

The fatty matters which the fibre contains may belong to the components of the fibre itself, and be natural matters; but in the case of wool they are mostly dressing oils, of which the dyer cannot be too anxious to rid himself before dyeing. Some practical methods of preparatory treatment of the fibres before dyeing may therefore be described here with advantage. Cotton is boiled-off, at actual boiling heat, for two hours, with 8 per cent. of its weight of carbonate of soda and a little soft soap, which treatment is sufficient for dark colours. For light colours it is necessary that the cotton be bleached. Wool is scoured with soda and soap, in the proportion of 10 kilos. soda and 2 kilos. Marseilles soap for 100 kilos. wool. Silk is scoured by boiling for 1½ hours in a boiling bath with 30% of its weight of soap. For light colours a second boiling should be given, with 15%.

The careful cleaning of wool previous to dyeing is of exceptional importance. Raw wool is cleaned with carbonate of soda and ammonia. For 50 kilos. wool to be cleaned, 6 kilos. carbonate of soda and 1½ kilos. ammonia are added to a bath of 1,500 litres water. The wool is laid down in it for twenty minutes at 35° C., taken up, squeezed, treated for fifteen minutes in another bath with 5 kilos. carbonate of soda, and then rinsed. The first bath must be renewed as often as possible, because it contains all the impurities. In the case of woollen yarn, 30 kilos. require two tubs of 400 litres capacity. The first tub is to contain 350 litres water and 2 kilos. ammonia at 10° Be. After working the skeins for three minutes in it, they are left to stand for fifteen minutes, then wrung out, and the operation upon the second tub is repeated. Finally, the yarn is rinsed several times in soft water.

Woollen piece goods are treated in a large wooden tub at 40° C. with 4 kilos. carbonate of soda and 2 kilos. carbonate of ammonia for 80 kilos. material. The pieces are moved about for twenty minutes, laid down in the bath over night, again turned for ten minutes, and hydro-extracted. They may also be handled for forty minutes upon a bath of 76 grms. ammonia for 100 kilos. wool at 60°, and then for twenty minutes in clear water at 60° C. After the wetting or preparatory treatment, it will be best to proceed immediately to dyeing; if the fibres be left in a heap for too long a time, there is danger that they may become heated, or at least that the moisture may be irregularly distributed by the difference of pressure or partial drying, causing an uneven fixation of the colour in the first stages of dyeing. The first two conditions of successful dyeing are, therefore, a suitable wetting-out, and scouring. The dyer, however, must be not less careful to see that the dye-bath is what it ought to be.

Whenever possible, the dye-stuff must be dissolved separately, or at least the bath not entered before the dye-stuff is well dissolved. Artificial dye-stuffs require particular exactness in this regard, because the presence of undissolved particles is the cause of irregularities, such as streaks, or, at least, specks. The solution is mostly made hot, as follows: After pouring water at 80° C. upon the dye-stuff, stir gently, strain through flannel or through a very fine sieve, and pour more water upon the residue until nothing more is dissolved. As is well known, the artifical dye-stuffs often contain insoluble matter, resins, etc. It is therefore advisable to use only corrected water for this operation.

The solutions of artifical dye-stuffs are ordinarily made at the rate of 1 to 5 grms. per litre of water, 2 grms. being the proportion mostly employed. This depends more or less upon the solubility of the dye-stuff. Old solutions sometimes contain crystals of the dye-stuff, which have separated out. These should be re-dissolved by heating before the solution is used. But it is best to make only such a quantity of solution as will suffice for the immediate requirements.

With paste colours care should be taken to keep them in closed vessels in such a manner that they will not become hard by evaporation, and they should not be kept in any place where they are likely to freeze in winter time. In such an event it is not an uncommon circumstance for the casks or other vessels containing them to burst, with a consequent loss of dye-stuff. Before any of the paste is withdrawn from the cask, it is advisable to stir it well up with a wooden stirrer.

In the use of the dye-stuff during the actual dyeing operation, it is advisable to add the dye-stuff to the bath in two or three portions, always taking out the goods before adding each lot of dye-stuff, and stirring up the contents of the bath before re-entering the goods. Another important condition of obtaining a level dyeing is to proceed slowly, beginning with a weak bath at a moderate temperature, and raising gradually to a boil. If necessary to retard the dyeing from the commencement, then an assistant mordant is added to the dye-bath, in the shape of soda crystal or phosphate of soda for the benzidine colours on cotton, bisulphate of soda in dyeing with azo colours or acid colours on wool; or tartar may be used in most cases with good effect, causing the wool to have a softer feel. Finally, the evenness of the dyeing is much increased by the frequent turning over of the material in the dye-bath, so managing this in the case of wool as to avoid felting.

When dyeing with a mordant, the dyer should see that the mordanting operation is thoroughly well done, for as much care is required for the mordanting as for the actual dyeing; in fact, if anything, the mordanting should be done with rather more care, as, if it be at all defective, no amount of care in the following dyeing operations will ensure a level dyeing. Chrome-mordanted wool should be dyed without delay, as it is rather sensitive to light, especially the yellow sort, which gradually changes into the green sort of chromed wool.

One peculiarity of dyed wool is that it will continue to take up colour after it is removed from the dye-bath, especially if it contains any

of the hot dye-liquor; therefore it is very desirable to wash the wool as soon as possible after its removal from the dye-bath. It is best, however, not to take the wool out of the hot bath, but to leave it in until the bath gets cold and then to take it out: by this means the colour becomes deeper and more solid-looking, and is faster on the wool.

One cause of irregular dyeing may be mentioned, as it is sometimes occasionally met with, namely, the presence of foreign fibres in the goods—cotton in wool fabrics—and even of different varieties of the same fibre. All dyers know that dead or immature cotton will not dye up properly—a fact or defect more especially met with in indigo-dyeing than probably in any other colour. Then wools from different breeds of sheep vary considerably in their dyeing power: fine wools take up more colour than coarse, and consequently, even from the same bath, will come out a deeper shade; if a fabric, therefore, contains the two kinds of cotton or the two kinds of wool, they will not dye up evenly.—*L'Industrie Textile.*

METHODS OF WOOL DYEING: THEIR PRINCIPLES AND PRACTICE.—V.

(Continued from page 114).

The next stage in the process is the actual dyeing operation, which is done by immersing the mordanted wool in a bath of the dyestuff or mixture of dyestuffs. The fundamental principle is to bring about the combination between the colouring principle of the dyestuff and the metallic oxide which has been deposited on the wool in the previous mordanting process. As neither of these bodies, however, is very energetic, it follows that the action must be a slow one, and therefore time is a highly important factor in the dyeing of wool by the mordanting process. The combination between the dyestuff and the mordant is influenced also by temperature, and is most active at the boiling point of water; it is therefore needful to conduct this operation at that temperature, but it would be a wrong way to introduce the mordanted material into a boiling hot bath of the dyestuff—nothing would conduce to uneven dyeing so much as that course. The best method of working, which, moreover, is most particularly applicable to the series of alizarine dyestuffs, is to enter the goods in the cold bath of the dyestuff, and to work them for a short time to get them thoroughly impregnated—a condition which is essential if even dyeing is the goal aimed at; then to raise the temperature of the bath gradually to the boil, the goods being in the meantime well worked. The dyeing is continued for from 1 to 1½ hours at the boil.

It is important in dyeing by this process, especially when using alizarine, to keep the temperature of the bath as uniform as possible, and the goods well worked. Alizarine, and some other members of this class, are rather sensitive to heat, and if a dye vat be hot at the bottom and cold at the top, the dyestuff goes on more quickly at the bottom than at the top, and uneven dyeing is the result; this is due to the greater affinity of the alizarine for the mordant at the high than at the low temperature, and thus more is fixed on to the wool. The remedy for this is to so construct the heating arrangements of the vat that the temperature shall be as uniform as possible, while the goods should be kept continually turned over, and every portion of them brought into intimate contact with the dye liquor. The continuance of the dyeing operations for 1½ to 2 hours after the vat has reached the boil is necessary to properly develop and fix the colour on the fibre—a short boil leaves the goods of a poor shade, without any solidity about it, and the colour is loose, while a longer boil brings up a solid shade and a fast colour.

Although it is not absolutely necessary to add any acid to the dye bath during the dyeing operation, yet as the alizarines and most of this class of dyestuffs dye better in a slightly acid bath, it is advisable to add a small quantity of acetic acid, say about 1 pint to every 100 lb. of goods; this serves to correct any alkalinity of the water, which may be due to its containing any lime. Dyestuffs of the acid class, such as indigo extract, cloth-red, acid magenta, etc., may be used along with the alizarine dyestuffs, in which case the addition of acid to the dye bath becomes necessary; but too great an excess of acid should be avoided, as it interferes somewhat with the dyeing of the mordant dyes.

This is by far the best and most generally used method of applying the mordant dyes. It is not a costly process, being, indeed, economical, as it only requires just the right amounts of drugs and dyestuffs, and there is the minimum of loss of material in the mordanting and dye-baths. Shades can be brought up with the greatest ease, although it is well in the dyeing to add rather less dye-stuff than is actually required, and to add more when it is seen how the shade is coming up. The labour is the most important item in the mordanting and dyeing method.

The proportions of materials used to the weight of the wool are: Of bichromate of potash, 3 % for full shades, and 1 % for pale shades; of fluoride of chrome, the same quantities; of acetate of chrome, according to the strength of the solution used; of alum, 10 to 20 %; of sulphate of alumina, 5 to 10 %; of copperas, 5 to 10 %; of tartar, 1½ to 2½ %; of oxalic acid, 1 to 1½ %; of sulphuric acid, 1 %; of argol, 2½ to 5 %; of tartaric acid, 1 to 1½ %; but of course in an article like this it is impossible to give definite quantities.

(To be concluded.)

A METHOD of producing white designs on cotton cloth dyed with basic aniline colours is given in a German contemporary. The cotton is mordanted in the usual way with a solution of tannin of 2% strength. This is dried, and then printed with a solution of caustic soda of 30% strength, thickened with dextrine. The printed goods are steamed for a minute or two, or hung for a longer time in a warm room, and then they are passed through the tartar emetic bath, after which they are rinsed and dyed in the usual way.

FABRICS may be made waterproof by the following process: 500 grammes of good gelatine are softened by steeping in six litres of cold water for 24 hours, after which the gelatine is completely dissolved by boilimg. To the solution is now added a solution of 500 grammes of good white tallow soap in six litres of water, and to this mixture a boiling solution of 750 grammes of alum in five litres of water is added, the whole being then boiled for 15 minutes. The goods are then steeped in it, then allowed to drain, dried, and next washed and dried again, after which they may be calendered.

Foreign Correspondence.

TEXTILE MATTERS IN THE UNITED STATES.

BOSTON, FEB. 10th.

Bullish reports come to hand occasionally from the South as to the cotton crop, but they are not worthy of serious notice. A report from Mississippi states that all the cotton at present in different warehouses is held by parties who are not willing to sell at present low values, "even if they have to carry over until the next season." The statement is frequently made that the cotton acreage for the coming season will be reduced without its being necessary to urge planters to combined action. The country merchants will not supply or advance farmers on a basis of six cents unless those farmers have something to secure them outside of crop and stock, therefore many plantations will lie idle. A great many tenants and share workers will be compelled to use their labour in some other avocation. It is only the well-to-do farmer who will be able to work his whole plantation. In many instances, farmers will only work a portion of their places, as neither the money lenders, bankers, nor merchants will advance them anything to buy mules or pay for labour to hoe and pick the crop; the tenants who usually were furnished some cash to employ labour for these overwhelming crops, will have to do the work themselves, as cotton will no longer pay to hire labour to make it. Such is the tenour of some Southern letters. Some of the more prosperous planters will not, it is said, grow so much, on account of the low prices, while others will raise less on account of their inability to get supplies of guano.

Reports received from Americans in Chemnitz say that the hosiery manufacturers of Saxony have borne the brunt of the McKinley Bill in a surprising way. They have classified their goods according to the new tariff. They have created new qualities, and where dyed goods could not stand the duty, the goods were exported in an unfinished state. This, of course, resulted in a tremendous revolution in prices, which had to be, consequently, carefully revised. Then it was requisite to economise on all sides, making it even necessary to reduce wages. The fear of having labour strikes was also growing, had it not been for the strenuous efforts used to prevent them. The ruling circumstances which set the manufacturers to such extremities could not generally place the matter at rest.

The surprise of the Americans grew daily when it had to be considered that this industry, notwithstanding these difficulties, had held its own much better than was expected, competed successively with other countries; and had not the United States jobbers heaped up a tremendous stock in expectation of the passage of the Bill, the business would have suffered but little. On account of this overstock of the market, Chemnitz had to suffer until recently; and to only this cause must be ascribed the state of the dull business, which, however, is recuperating. Notwithstanding the fact that prices rule at the lowest ebb, business has assumed more regular features, and the prospects are for this year better; consequently, we can look forward for a well guarded step for improvement of the business.

In speaking of new articles of this manufacture it seems that a considerable change is apparent. The preference leans for pattern goods, because the *Technik* has in the meantime so considerably advanced that the difficult *à jour* patterns which could only be produced on the hand-loom are also made on the power-loom.

The following table shews the imports of foreign dry goods at New York for seven months ending with January:—

	1890.	1891.	1892.
Mfs. of wool ..	$17,277,152	$13,847,653	$9,852,816
Mfs. of cotton..	9,784,099	9,802,799	6,606,890
Mfs. of silk	23,282,420	21,360,084	15,285,897
Mfs. of flax	9,239,769	8,003,486	6,416,387
Mis. dry goods..	6,014,644	6,365,816	5,345,553
Total imports ..	65,628,684	59,379,838	43,507,543

The figures represent the net gold values without the addition of freight or duty.

Printing cloths have been rather quiet in demand and general sales not specially heavy. Prices rule firm at 3 1/16c. for 64 × 64 cloths, spot, 3 1/16c. for March delivery; 56 × 60 cloths bring 2 7/8c.

At Fall River the reported sales for the week ending Jan. 30, 1892, were as follows:—

	Pieces.
64 × 64 cloths, spots, at 3 1/16c. value.....	27,000
64 × 64 cloths, to be made.....	50,000
56 × 60 cloths, spot.....	3,000
Irregular cloths to be made	88,000
Total	168,000

At Providence the reported sales for the week ended January 30th, were as follows:—

	Pieces.
64 × 64 cloths, spots, at 3 1/16c., value	32,000
56 × 60 cloths at 2 5/8c.	2,000
Total	34,000

The reported stocks at the several centres Saturday, January 30th, 1892, as compared with the corresponding week in the previous two years, were as follows:—

	1890.	1891.	1892.
Fall River manufacturers..	17,000	425,000	37,000
Fall River speculators	—	—	—
Providence manufacturers	303,000	331,000	192,000
Providence speculators....	—	—	—
Elsewhere	3,000	—	—
Total	321,000	756,000	229,000

The closing quotations for middling spot cotton, 64 × 64 and 56 × 60 cloths, January 30th, in the three years were as follows :—

	1890. Cents.	1891. Cents.	1892. Cents.
Extra 64 × 64 cloths.....	3 54	3	3 1/8
56 × 60 cloths	3 19	2 7/8	2 3/4
Middling cotton, spots....	10 94	9 1/4	7 7/8

Mr. C. M. Moseman, a prominent dealer in saddles, blankets, and general horse goods, of this city, recently sent copies of a circular letter to manufacturers in all parts of the Old World, whose goods his firm used to import, suggesting that they send him cuts, photos, or descriptions of goods which they desired sold in America. One of the largest English dealers in these goods, William Middlemore and Co., in reply to this letter, says :—

"My supplies of saddlery to the United States have of late years been very small. Since the McKinley Tariff Bill I have received no orders whatever."

In reference to this letter, Mr. Moseman said to a *Tribune* reporter : "The advance in the import duties upon woollen, leather, and hardware goods made by the McKinley Tariff has had a most encouraging effect on the domestic manufacturers. These goods can be bought to-day considerably cheaper than when the old tariff was in force, and the present duties make it impossible to import goods of foreign manufacture and sell them with any profit. This has so encouraged the domestic manufacturing industry that new factories and mills are continually being started, and the greater demand for the domestic goods still allows them to sell the much larger output at cheaper prices to advantage, while wages are kept fully up to their former point by the increased demand for labour.

"I am now exporting woollen blankets to the very English dealers from whom I bought goods for import two years ago. They ship our goods to Australia, and we find that the Australians are using goods of American manufacture largely where those of English make were formerly used."

Mr. Archibald Campbell, of Glasgow, is said to be in Chester, Pa., looking for a site to build a mill for the manufacture of lace.

Further investigation of the action of the Customs authorities in advancing the duty on fringed linens from 35 to 50 per cent. *ad valorem* discloses the fact that the General Board of Appraisers rendered a decision on April 23rd, 1891, in which the 35 per cent. duty was affirmed. In this decision rules for counting the number of threads to the square inch were laid down, which were quite ignored in reaching their subsequent ruling (May 1st, 1891), that duty should be levied at the rate of 50 per cent. *ad valorem*.

The decision of April 23rd was on protest by Messrs. Taylor and Young against the duties assessed by the Collector at the port of San Francisco ; that of May 1st on the protest of Edmund Taylor and Co., also against the action of the Collector of San Francisco. The decisions given are as under :—

April 23, 1891.

"The other merchandise in question appears to be known in the trade as Turkish towels. The sample is a completed article with borders and fringed ends. It is about 60 inches in length and 24 inches in width, and is manufactured from flax. The body of the towel has a rough appearance, produced by the warp threads being looped alternately on opposite sides of the fabric in the process of weaving. The proviso to paragraph 371 reads, 'That until January 1, 1894, such manufactures of flax, containing more than one hundred threads to the square inch, counting both warp and filling, shall be subject to a duty of 35 per cent. in lieu of the duty herein provided (50 per cent).' There is no limitation imposed upon the manner in which the threads are to be counted. It is not required that they shall be countable by the eye or with a glass in the fabric. Resort may be had to raveling or other means whereby the number of threads to the square inch can be accurately determined. We have satisfactorily tested the said towel, and find that it contains more than one hundred threads to the square inch, counting the warp and filling.

"The claim of the importer that this portion of the merchandise is dutiable at not more than 35 per cent. *ad valorem* is accordingly sustained."

May 1, 1891.

"In the case now presented to us, one-twelfth of the surface of each towel contains less than one hundred threads to the square inch, and such portion could not come within the proviso of par. 371 ; the other portions of the towel contained the requisite number, but the towel entire is the complete article of manufacture, including fringes, and, applying the language of Judge Lacombe to this merchandise, can we ignore the fact that many square inches of this manufacture do not count one hundred threads ; and can we say that the article as a whole may be fairly classified by the test laid down in the proviso as included within its provisions? We find the following facts upon which to base our conclusions :—

"1. The articles the subject of this protest are linen towels, manufactured of flax as the component of chief value.

"2. Definite portions of each towel contain more than one hundred threads to the square inch, counting each separate thread of warp and filling and other appreciable portions less than that number.

"3. Each towel is a separate and complete article of manufacture, with fringes consisting of the warp threads only.

"Upon these findings we are constrained to hold that manufactures of flax of this kind are not embraced within the proviso of par. 371, but only such manufactures as are woven, so that the number of threads per square inch will not fall below one hundred in any appreciable portion of the fabric.

"The protest is overruled, and the action of the Collector is affirmed."

Designing.

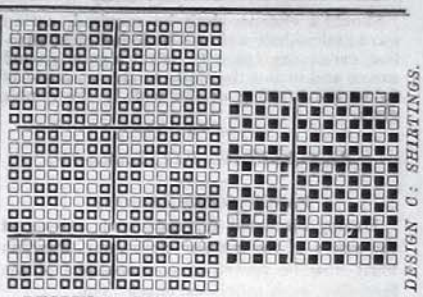
NEW DESIGNS.

COTTON DRESS GOODS, ETC.

Design A is on 16 shafts, straight-over draft, 20 to the round, 72 ends per inch for warp, 24's cotton ; 72 picks per inch, 24's cotton weft. *Warp pattern*—200 of dark brown, 36 white, 4 dark brown, 36 white, 6 dark brown, 32 white, 8 dark brown, 24 white, 12 dark brown, 12 white, 18 dark brown, 6 white, 36 dark brown, 4 white, 36 dark brown, 2 white, 36 dark brown, 2 white ; total threads in pattern, 550 ; the repeat commences from the "200 dark brown." *Weft pattern*—the same. By retaining the white or some very light tint, the following fashionable shades may be used for dark brown : bog myrtle, bronze, fawns, sage, emerald green, terra-cotta, olive, mauve, and "London smoke." Pretty patterns may be obtained on a more convenient scale to the checking round by equal squares of two colours, 24 and 24, or 12 and 12.

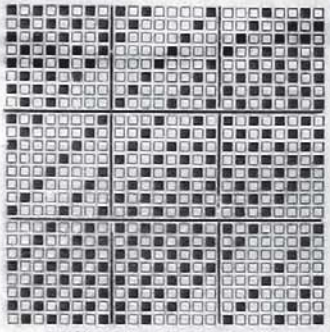
Design B is also for fancy cotton dress goods suitable for the Spring, in large plaid checks, 24 shafts, straight-over draft, 24 to the round, 24 dents per inch, 4 in a dent of 40's cotton warp, 96 picks of 40's cotton weft ; perhaps 80's two-fold for warp would give more facility in the weave. *Warp pattern*—64 very light cream or faint yellow, 24 peacock blue, 64 cream, 4 blue, 16 cream, 4 blue, 12 cream, 8 blue, 8 cream, 12 blue, 4 cream, 16 blue, 4 cream, 64 blue, 24 cream, 64 blue, 4 cream, 16 blue, 4 cream, 12 blue, 8 cream, 8 blue, 12 cream, 4 blue, 16 cream, 4 blue ; total, 380 threads, and repeat from the first "64 light cream." *Weft pattern*—the same. For peacock blue, the variations are black, dark blue, rose, greens, fawn, stone, drab, and buffs. The diagonals cut the monotony of the plain ground, giving a very charming effect.

Design C is for shirting patterns, 13 shafts, straight-over draft, 13 to the round. This design represents a class of patterns eminently useful for any fabrics, whatever the material used in the construction. It is not always that designs will be found adaptable to such a diversity or number of changes as can be found in this very simple weave. It only requires a little ingenuity for any pattern weaver to obtain effects, if different colours, or different shades of the same colour, be used in the checking. We might easily cover a page of this journal with details in connection with the variety of combinations easily produced from this design ; but we can only confine ourselves to the following particulars. For a good fancy shirting, or lawn tennis cloth, 66 reed, two in a dent, 20's cotton for warp, all two in a heald, one heald per dent, 48 picks per inch of 12's cotton weft, two in a shed. This is to obviate the use of drop boxes on each side. *Warp* pattern : 2 navy blue, 2 white. *Weft* pattern the same, or 2 dark brown, 2 white ; or 2 dark green, 2 white ; or 2 dark red, 2 white. If a break in the diagonal is required, the checking may be continued for any distance, and by using four of white in place of the ordinary two of white a very singular change takes place ; by again commencing with the two-and-two pattern, the angle, or rather run of the diagonal is removed 22 threads away from its original position, giving a very unique, handsome, and desirable effect. It will be found one of the most serviceable designs that a manufacturer can possibly entertain for a cheap cotton fabric.



DESIGN A : COTTON DRESS GOODS.

DESIGN C : SHIRTINGS.



DESIGN B : DRESS GOODS.

FIGURED MANTLINGS.

In *Design* 10 is illustrated a type of figured mantle cloth at present much in favour. In the more elaborate examples some extensive figure is formed, having a bulky or raised appearance, owing to the peculiar manner of utilizing double-plain with some solid weave, such as sateen, or, preferably, crape. It will be observed that in the oblong figure given in *Design* 10, double-plain is used throughout ; but that the constant changing of the two cloths thus formed is all the binding that takes place. Owing to this fact, quite a raised or wadded appearance is given. Of course a wadding pick coming in between the two cloths may assist, but more depends upon the distance apart of the interchange. For example, should the interchange take place every six threads and picks, practically no raised appearance would result. Several methods of development suggest themselves. First of all the fabric may be worsted, all one colour, under which conditions a good crape weave for the ground will materially add to the effect. Another method suggested is a one-and-one scheme of colouring in the warp and weft. For example :—

Warp.
1 thread 2/60's medium grey lavender.
1 thread 2/60's black ;
16's reed 6's.

Weft.
1 thread 30's medium grey lavender.
1 thread 30's black ;
96 picks per inch.

In the solid colour intimated above, a somewhat coarser sett and yarn will prove more effective.

Should a cheaper cloth be required, cotton warp and mohair weft will be found most effective, care being taken to select a good ground weave and to sett the cloth to give an angle of 60° in the bending of the weft in the double plain.

ANALYSIS OF PATTERN.—IV.

FANCY COMBINATIONS.

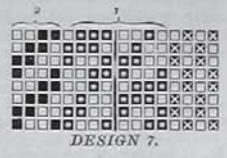
Having discussed the means of arriving at the weave of the simpler cloths, our attention must now be turned to combinations of the foregoing, such as stripes, checks, etc.

Stripes are easily treated, the weaves of each section being analysed separately, and then combined in the best manner. Thus, for example, the weaves of such a stripe as that represented in *Diagram* 6A may be taken from the surface by means of a piece-glass—let us suppose they are respectively *Designs* 1 and 6—then there is usually no need to examine the exact way in which they are combined in the cloth, which would be only waste time, for they may be equally well combined on design paper irrespective of the cloth.

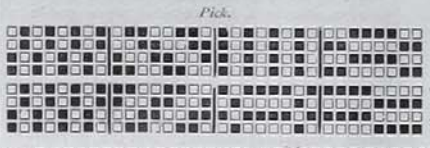
In *Diagram* 6 are given two threads out of the same cloth, which is a stripe composed of the weaves given in *Design* 7. Thread 1 has been taken out of section 1 on the design, being Mayo or Campbel twill, *a* = two down, *b* = one up, and *c* = two down, and *d* = three up. Thread 2 is taken from section 2 of the design, being two-and-two twill or rib. Of course a weft pick would show alternately sections of each weave.

Checks may be treated in very much the same manner, the weave being taken off each section of the pattern and combined as efficiently as possible. For example in *Diagram* 7, a thread and pick taken from a fancy check are given. The construction is demonstrated in *Design* 8 and *Diagram* 8A, which it will be seen is composed of warp and weft ribs and 2-and-2 twill, a careful inspection of the curvature of these threads reveals the respective components. In the thread 1 and the pick 2, *a* = warp rib, *b* = 2 and 2 twill, and *c* = weft rib. Thus again is it evident that the minute inspection of each individual thread and pick may reveal to a considerable extent the structure of the fabric.

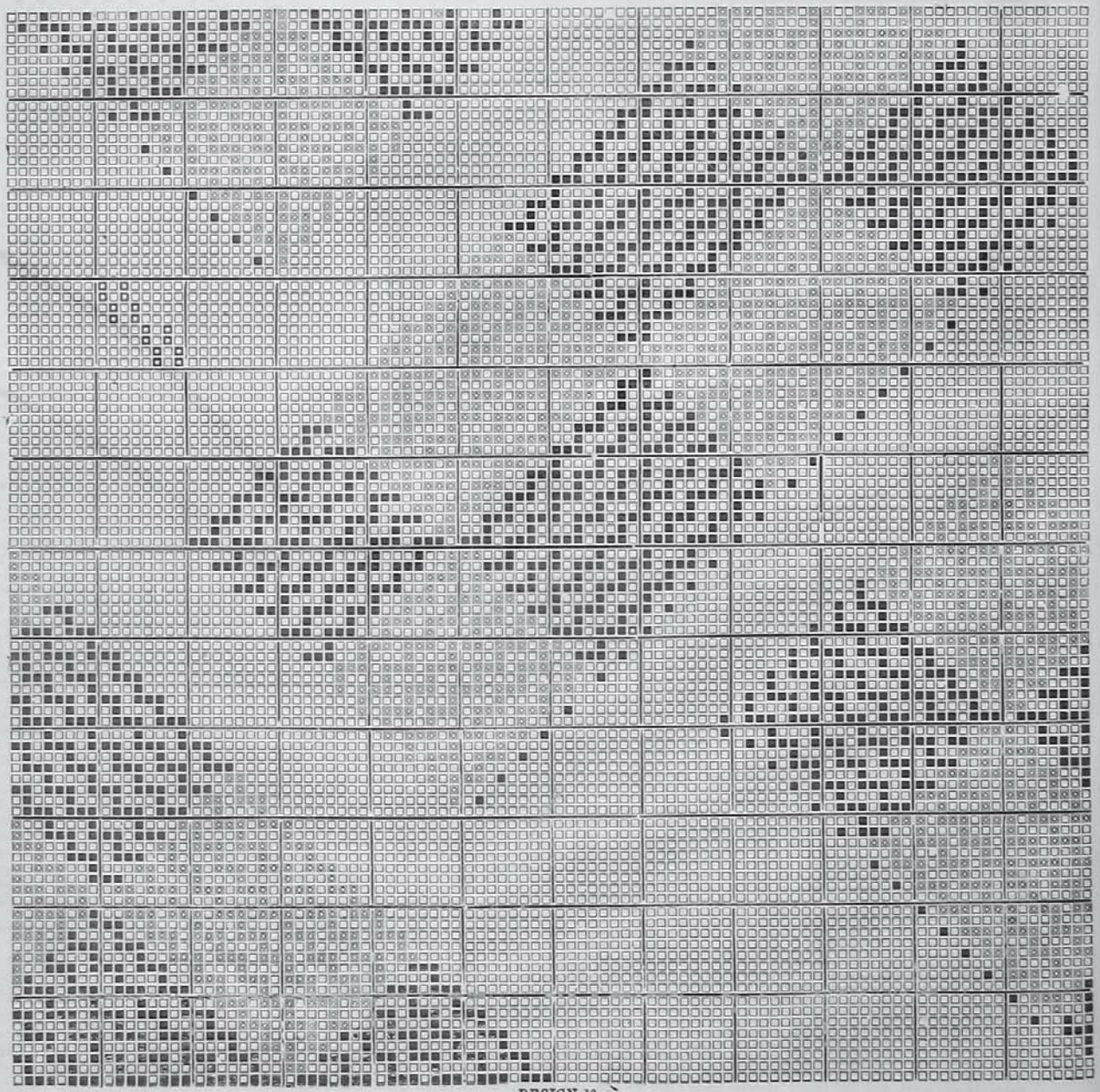
(To be continued.)



DESIGN 7.



DESIGN 8.



DESIGN 10.

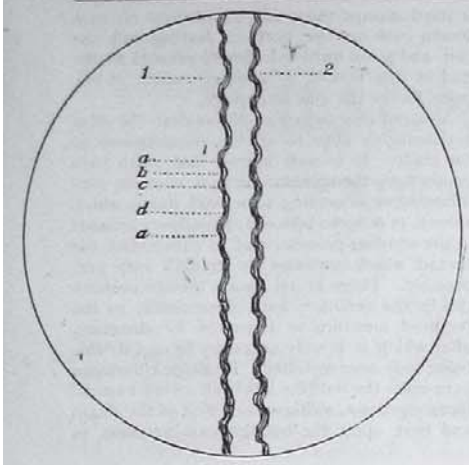


DIAGRAM 6.

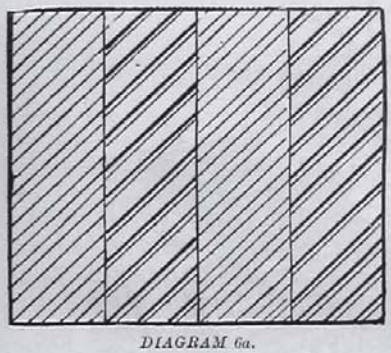


DIAGRAM 6a.

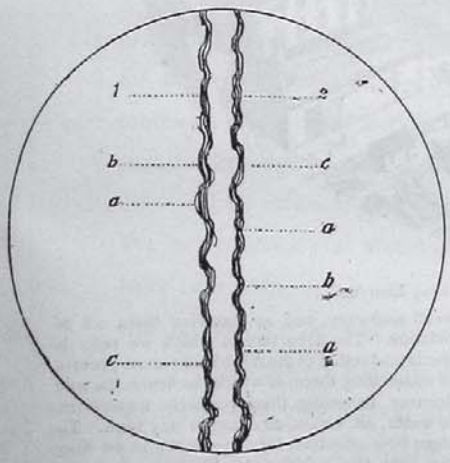


DIAGRAM 7.

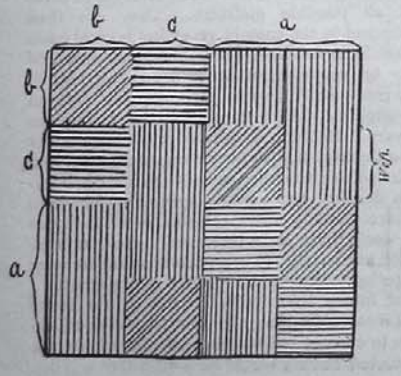


DIAGRAM 8a.

Machinery and Appliances.

THE CORNHOLME BOBBIN AND SHUTTLE WORKS.

MESSRS. WILSON BROS., LIMITED, CORNHOLME, TODMORDEN.

One of the most conspicuous and important results arising from the founding and successful development of a new industry is the multitude of new dependent ones that spring from it, and are maintained by it, as are the branches from the trunk of a tree. No more remarkable illustration of this fact can be found than that of the English cotton trade, which is the parent of a very numerous progeny of such trades and industries. To enumerate these however, is scarcely necessary; they will at once suggest themselves to the minds of our practical readers. Amongst the most curious and interesting of this group is that to which we wish to draw the attention of our readers, namely, that of bobbin turning. An immense number of these articles are consumed in the different textile industries, and especially in our cotton mills. For the sake of the untechnical reader under whose eyes this sketch may possibly fall, we may explain that bobbins and spools are tubes, generally of wood, and with or without flanges, made for the reception of fibrous materials in various stages of manufacture or in the finished state. The materials mentioned are put upon bobbins for convenience in handling. A simple and familiar illustration may be pointed to in the spool or reel of sewing cotton known in every civilised home.

The making of bobbins is a branch of the ancient craft of wood turning, if, in fact, it has not almost become the trunk so far as importance goes. Wood turning in the olden days was a trade of much more importance and repute than at present, modern ingenuity having almost displaced its productions by making the articles to which it contributed in a much more comfortable and convenient form. For instance, spindle-backed chairs, never very easy, and once the ornament of every household, have entirely disappeared, and it is rarely indeed that a spindle of any kind now finds a place in the construction of an article of furniture. But simultaneously with the decay of the demand for the old productions of the industry, its capabilities were requisitioned in another direction and for other purposes. This was for the manufacture of bobbins of various kinds for our textile factories, and especially for the rapidly growing cotton trade. This special form of wood turning has gone on growing with the expansion of the textile trades, and has now become one of the important minor industries of the United Kingdom. If our readers will kindly accept of our leadership we will conduct them over the Cornholme Bobbin Works, of Messrs. Wilson Bros., Limited, Todmorden, probably the most important and extensive of their kind in the world.

Previously to entering the extensive works it may prove interesting to briefly sketch their history in order to form some idea of the character and quality of the influences to which they owe their origin.

The firm of Wilson Bros., Limited, was founded by the late Lawrence Wilson, in 1823, in the romantically situated village of Todmorden, a couple of miles away from Cornholme, the place where the works now stand, and which was then, we believe, nameless as a distinct locality. After being conducted for some time in Todmorden, its proprietor, because of requiring more accommodation, improved water facilities for motive power, or readier access to the raw material in the shape of wood, moved up the glen in the direction of Burnley, to Pudsey, not far from the present site. In or about 1835, circumstances rendered it desirable to move again, which he did in the same direction, and having selected a suitable spot, metaphorically speaking he pitched his tent, built a mill, and called the place Cornholme, the name it bears to this day.

After settling here Mr. Wilson took his sons into partnership, and the style of the firm became Lawrence Wilson and Sons, the partnership continuing until his death in 1859. The firm continued to trade under the style mentioned above until 1877, when a change was made to that of "Wilson Brothers," and has since so continued. In 1889 the firm was registered as a Joint Stock Company, Limited, this being in effect a private arrangement, no shares being offered to the public. The present principal proprietors are Mr. Joshua H. Wilson, son of the founder; Mr. Herbert H. Wilson, grandson, and Mr. John Greenwood, who has for many years past been manager of the extensive works at Cornholme, depicted in our illustration.

The business of the firm extending owing to the excellent quality of its productions led to the acquisition of the Shannon Saw Mills, Athlone, Ireland, also illustrated herewith. These mills are the largest, most complete, and best equipped works of the kind in Ireland. They have every facility for steam and water carriage. The entire plant was thoroughly overhauled about three years ago, so as to increase its capabilities in every respect, and, as a protection against fire, was fitted with the "Grinnel" sprinkler, and a large steam fire pump by Goodbrand and Holland. In this mill 120 workpeople are employed, and they cut up 120 tons of timber weekly into rough blocks, which are transmitted for finishing to Cornholme.

The introduction about eighteen years ago, and subsequent, rapid development of the ring spinning system of producing yarns, led to a great demand for ring bobbins of much more perfect construction than that in which bobbins had usually been produced. Messrs. Wilson Brothers were equal to the occasion, and their successive improvements have made their name and their productions well known wherever bobbins of any kind are used. The firm are the proprietors of about twelve different patents for improvements in the construction of bobbins. Amongst these we may mention the excellent shields for long and short collar tubes, which have been most highly appreciated, as they have enabled the firm to offer to the trade a lighter and at the same time a remarkably strong tube. Next come protectors for ring bobbins for both the Rabbeth spindle and weft purposes. These are made in every variety to suit the requirements of consumers. The firm's out-put of this class of bobbins amounts to over 6,000 gross per month. Another patent is for a protection for warping and winding bobbins, which consists of a steel fluted ring, inserted around the flanges of the bobbin. Since its introduction the demand for it has increased so rapidly that the firm has been compelled to more than double its capacity for producing them.

In caps and drivers for ring doubling and spinning bobbins, the firm have a large assortment of sizes. They have recently introduced one of the latter of very high merit, in that it cannot possibly come loose upon the bobbin.

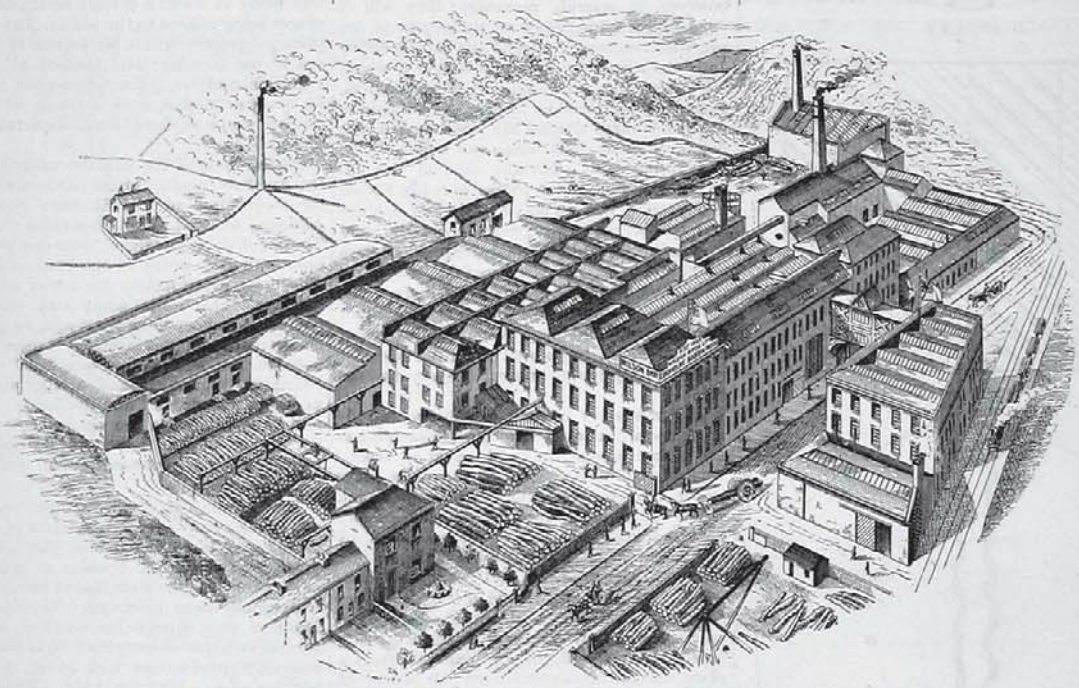
As will be obvious from our illustration, this vast block of buildings has been erected at different periods to meet the growing require-

ments of the trade. The whole together occupy an area of about 12,000 square yards, and are mainly constructed of the stone of the district. At the western end are the timber yards, replete with the vast stores required for the consumption of the works. Much of it is of Irish production, but large supplies are drawn from both English, Scotch, and foreign sources. These include English beech, ash, sycamore, alder, and birch. Amongst foreign timbers are birch, maple, and hickory. As the firm consumes 1,000 tons per month, it will be obvious that there is a continual and heavy draught upon these stores, and a corresponding necessity to keep up an assured supply. The great trunks are taken, cut into logs varying from a yard to two yards in length, and then into planks. These are next taken into the saw mill, and cut into bobbin blocks of ten or twelve inches in length. In the course of this reduction all faulty and defective pieces are carefully thrown out. In this form they are mostly stored for seasoning in a number of long, light, and airy sheds, in which they remain for from 12 months to two years. This seasoning process having been completed, before using, the blocks are stoved and thoroughly dried by steam heat in the drying stoves, which like every other part of the premises are constructed on the best principle. These stoves rise in tiers one over another, and are of various temperatures; they are divided from each other by passages, and separated into sections by iron doors for the better shutting-off of fire. They are also provided with bins and shelves on which the timber is placed, and the heat is supplied by means of steam pipes so arranged as to form a circuit to the boiler. To make sure that no mistake shall occur a record is made of the date when the contents of every stove are entered. These bins contain a large number of tons of cut-up timber, and as the different stages of drying are passed the pieces are removed to other bins and gradually brought nearer to the point where the finer operations commence. In addition to these there are a series of seasoning stoves, in which the woods for certain purposes are subjected to an infusion of steam for about twelve hours. The wood submitted to this process goes into the stove white in colour, and emerges a beautiful light red, the change having been wrought by the action of the steam upon the sap. It is always beech which is subjected to this process, the treatment destroying its affinity for moisture, which might cause it to swell or warp.

It will be obvious to the considerate reader that it is impossible to follow the material through, and describe every process to the finished article. In fact, our space will hardly permit us to do more than mention them. When the timber has undergone the proper amount of seasoning to prevent it from warping or cracking, it is taken from the stoves and distributed to the various workmen whose duty it is to convert it into the required shape of bobbin for weaving or spinning—shapes and sizes as variable almost as the goods in the manufacture of which they are used. The processes after those we mentioned previously as necessary to reduce the material to proper dimensions are boring, "roughing," turning, and finishing the bore. The rapid manner in which these are gone through and the wonderful changes they effect are marvellous in the eyes of the observer. Next come the finishing processes, such as sand-papering, painting, a second sand-papering, testing, varnishing, etc., when they are finished, ready for packing for the home or export branches of the trade.

The series of rooms in which these processes are carried on and the machines performing them are simply bewildering to the uninitiated. The machines are to a large extent automatic, and many of those in use have been designed for the requirements of the firm's specialities, and we believe have been made upon the premises. Especially is this the case regarding the machines for applying the hoops, rings, and shields used in their improved bobbins, many of which are shewn in our coloured supplement herewith. For the production of one of these hoops or rings several machines are required: one machine cuts a piece from a slip of tin and presses it into the shape of a small cup, another trims off the rough edges, a third stamps the name of the firm on it, a fourth cuts out the bottom, leaving only the rim, and so on until it is finally pressed on the end of the bobbin by another, which at one push forces the rim into place.

A recent new departure shews that the firm is thoroughly alive to all the requirements of the trade. It is well known that when yarn comes from the spinning room it requires conditioning or subjecting to a cold, damp, atmosphere, in order to take out its tendency to snarl in the winding process, and to consolidate the thread, which increases its strength very perceptibly. There is not always time to perform this in the ordinary way of exposure, so the required moisture is imparted by steaming, after which it is only necessary to cool it, this being soon accomplished. To steam ring frame yarn upon the bobbins has been a very unsatisfactory process, owing to the effect of the steam and heat upon the bobbins causing them to swell and warp, and so throwing them out of balance. The departure to which we refer is the introduction of the American patent process of enamelling them, of which the firm is the sole licensee, to render them perfectly impervious to water, oil, steam, or damp in any form. To shew how effectual this treatment is we may say that the bobbins to be enamelled are thoroughly baked in hot ovens in order to drive out all possible moisture. They are then immersed in the enamel, receiving several coats before being finished. The bobbins thus prepared may be subjected, when in use in the mill, to any treatment that the yarn requires, without the slightest risk of damage to either bobbins or yarn. Bobbins so treated have been under experimental test in very numerous cases, and with such satisfactory results that a considerable demand has already sprung up for them, the firm already manufacturing over 500 gross per week, these including many repeat orders, which are nearly always accompanied by very flattering testimonials. There is apparently a great future before this branch of the firm's business. We may add that they also undertake to enamel old bobbins, so that where this protected bobbin would be a desirable acquisi-



THE CORNHOLME BOBBIN AND SHUTTLE WORKS.—MESSRS. WILSON BROS., LIMITED.

WILSON BROTHERS, LIMITED,

CORNHOLME MILLS, TODMORDEN, ENGLAND.

RABBETH RING BOBBINS FOR TWIST & WEFT.

RING Spinners are well aware of the disadvantages and loss resulting from the use of ill-fitting and badly balanced bobbins. In response to many inquiries from Machinists and Spinners, for a better and more reliable ring bobbin than had hitherto been supplied, we decided to establish a separate department, devoted entirely to the manufacture of this class of bobbin. This department has been working most satisfactorily for several years, during which time it has been found necessary to enlarge again and again to meet the growing demand, and we are constantly on the alert adding to our plant every improvement that skill and capital can secure. Only recently we have erected a new and important addition to our plant which enables us to make bobbins steam and damp proof. Ring Spinners can now condition yarn on the bobbins without injuring them.

The accompanying drawings represent a few of the patterns most in demand among prominent Ring Spinners. They have been designed with a view to overcome some of the difficulties and objections raised against ring spinning.

Being the largest makers of ring spinning bobbins we are, necessarily, in touch with the principal firms of Machinists, Spindle Makers, and Spinners, and have thus exceptional facilities for ascertaining and embodying in our patterns the latest improvements and the results of a wide practical experience. We manufacture over twenty different styles, embracing every desirable pattern known.

The efficiency of a ring bobbin depends largely upon the timber from which it is made. We pay most careful attention to this point, importing the finest timber for the purpose. We have two years' stock always in our seasoning department, and no timber is used for these bobbins that has been seasoning for less than twelve months.

The perfect Rabbeth Ring Bobbin should never go tight on the spindle. The fit should be so accurate as to give a good grip on the spindle point and yet be easy to doff. So much importance is attached to this and true running, by makers of ring spinning machinery, that they are constantly warning Spinners of the evils resulting from ill-fitting and badly balanced bobbins.

The Patent Metal Protectors have become well known throughout every country, and their durability and effectiveness commend them to Spinners. The advantages will be at once evident on a comparison of the average pressure the various kinds are capable of resisting. The tests have been made by C. LANCASTER, Esq., Engineer, Market Street, Manchester. From this we ascertain that, while a plain bobbin will only resist an average pressure of 57½ lbs., the same kind of bobbin with our American pattern of shield will resist an average pressure of 230.31 lbs. Again, the plain beaded bobbin will bear only 96.6 lbs., whilst our pattern "C" will bear 411.38 lbs.

SECTION.

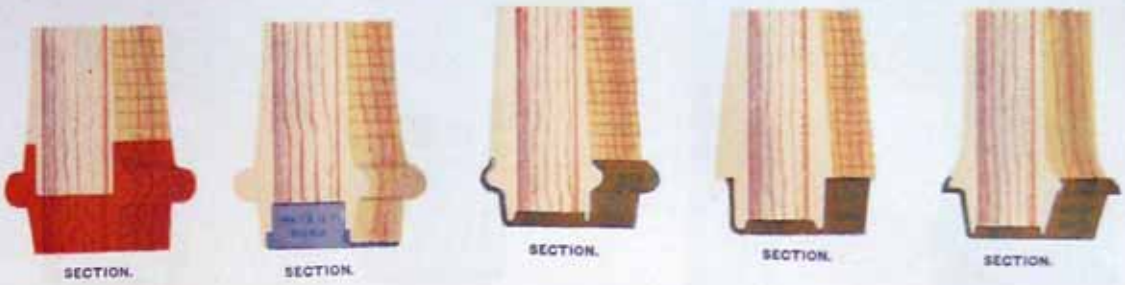
SECTION.

SECTION.

SECTION.

WILSON BROS.' LIMITED, PATENT ENAMELLED BOBBINS

BY A NEW PATENT PROCESS, WOOD BOBBINS ARE COMPLETELY COVERED, BOTH INSIDE AND OUTSIDE, WITH HARDENED ENAMEL THAT WILL NOT CRACK OR BECOME ADHESIVE. THEY EFFECTUALLY RESIST THE ACTION OF STEAM AND MOISTURE REQUIRED IN CONDITIONING YARN. IMPOSSIBLE TO WARP OR TWIST FROM REPEATED STEAMING. REFERENCES TO USERS IN GT. BRITAIN AMERICA, AND THE CONTINENT.



IMPROVED RING TWIST BOBBINS, BEADED, CONICAL, AND COMBINED BEAD AND CONE, MADE BY MESSRS. WILSON BROS., LIMITED, CORNHOLME MILL, TODMORDEN,

SHOWING THE APPLICATION OF THEIR PATENT STEEL AND BRASS SHIELD PROTECTORS.

THESE BOBBINS POSSESS THE ADVANTAGE OF BEING AN AUXILIARY TO GOOD GAITING, AND IT IS ALSO CLAIMED THAT THEY PRODUCE A MORE REGULAR AND EVEN YARN. FIG. "C" THE UNION JACK REPRESENTS A NEW AND IMPROVED BOBBIN, WHICH CONTAINS ALL THE IMPORTANT FEATURES CLAIMED IN THE **BEADED BOBBIN.** FOR STRENGTH AND NEATNESS IT CANNOT BE EXCELLED. IT STANDS A TEST OF 411.33lbs. WHILE THE SAME **SOLID BEADED** BOBBIN **UNPROTECTED,** IS ONLY 98.6lbs. THOUSANDS ARE AT WORK IN EVERY COUNTRY GIVING ENTIRE SATISFACTION.

THE COMPRESSION TEST MADE BY Mr. CHARLES LANCASTER, ENGINEER, IS AS FOLLOWS.—B 370 lbs. C 411.33lbs. D 202.90lbs. E 322.5lbs. F 179.31lbs. WHEN ORDERING, SPECIFY NUMBER, AND SEND COMPLETE SPINDLE FOR TESTING.

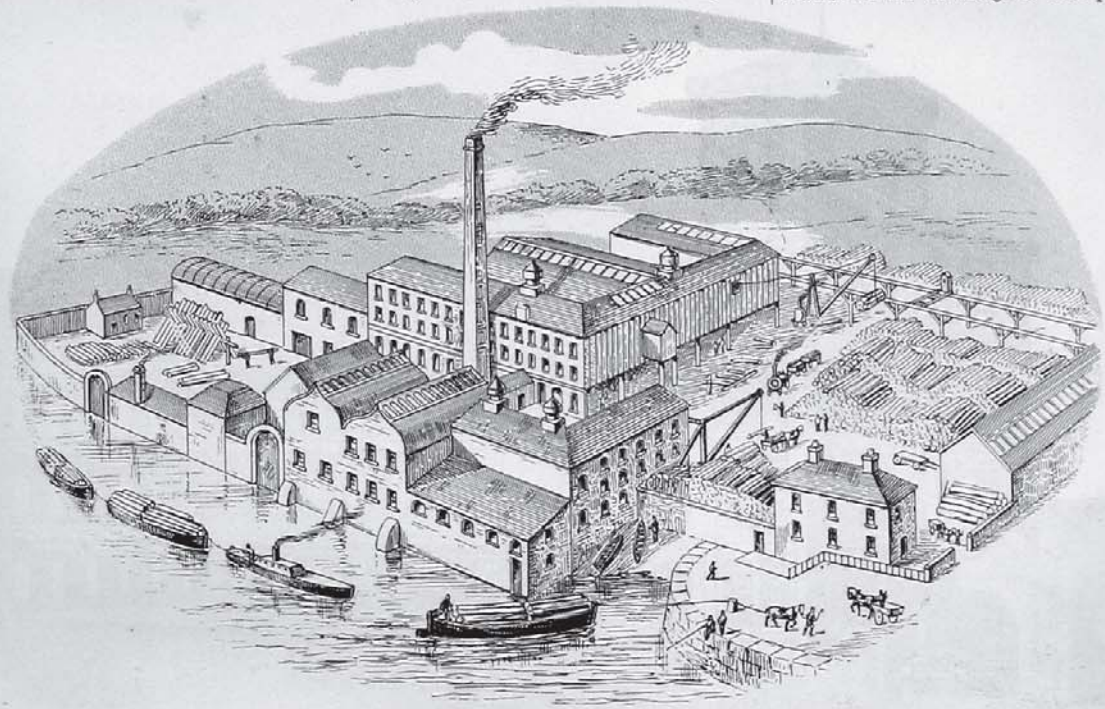
RING TWIST BOBBINS MADE BY MESSRS. WILSON BROS., LIMITED, CORNHOLME MILL, TODMORDEN,

SHOWING THE APPLICATION OF THEIR PATENT STEEL AND BRASS SHIELD PROTECTORS.

THESE BOBBINS IN POINT OF APPEARANCE, DURABILITY, AND ECONOMY, AND FOR STEADY RUNNING REMAIN UNEQUALLED. FIG. 5 REPRESENTS THE AMERICAN PATTERN, A NEAT AND SUPERIOR BOBBIN, HAS A GREATER SALE BOTH IN ENGLAND AND AMERICA THAN ANY OTHER STYLE OF RABBETH BOBBIN. FIG. 7 THE CROWN RECENTLY INTRODUCED BY WILSON BROS., LTD., IS EQUALLY DURABLE AND IS NOW BEING ADOPTED BY MANY LARGE FIRMS. IT HOLDS MORE YARN, CONSEQUENTLY FEWER DOFFINGS. IT IS LIGHTER AND SPECIALLY ADAPTED TO LIGHT AND QUICK RUNNING SPINDLES. THE COMPRESSION TEST MADE BY MR. CHARLES LANCASTER, ENGINEER, IS AS FOLLOWS:—No. 2 155.40 Lbs., No. 4 158.46 Lbs., No. 5 230.31 Lbs., No. 7 169 Lbs. WHEN ORDERING PLEASE GIVE NUMBER AND SEND SPINDLE FOR TESTING.

tion to spinners, they need not wait until their present stores of bobbins in use are worn out. In order that spinners may satisfy themselves as to the value of the process, they will enamel a sample gross free of cost for any spinning establishments that desires to try them. We therefore commend this offer to their notice.

In the cutting up and manufacture of a thousand tons of timber per month there is naturally a large by-product of wood waste in various forms. Until recently this waste, which was almost 140 tons per week, was burnt for fuel, but the firm have recently erected one of the most complete plants in the kingdom for the carbonization and distillation of this waste material, and now, under the processes to which it is treated, this yields a number of valuable products, such as charcoal, naphtha, various acids, tar, and all the usual products obtained from the distillation of wood. The enamel used for the bobbins comes from this source.



THE SHANNON SAW MILLS, ATHLONE.—MESSRS. WILSON BROS., LIMITED.

We have now given some means for forming what must in any event, short of a long and careful personal inspection, be but an imperfect approximate idea of this vast and important establishment. We only need to add, in order to put the matter into small compass, that, as observed above, the consumption of timber in their works exceeds an average of 1,000 tons per month. From this are manufactured between 11,000 and 12,000 gross of bobbins of all sorts per month. To accomplish this they require and constantly employ about 700 workpeople, and pay in wages over £25,000 per annum. During the last four years the business of the firm has more than doubled, and during the last twelve years it has more than quadrupled. The firm has been a frequent exhibitor of its productions, and holds high honours awarded from every important exhibition for many years past. Its customers are to be found in every country in the world where the spinning industry exists. Persons wishing to inspect samples of its productions can do so at any time by calling at their town office, 14, Market Place, Manchester. The representatives of the firm are to be met on 'Change on Tuesdays and Fridays, from 1·30 to about 3 p.m., and the firm will always be pleased to answer business enquiries addressed to the works by post.

The firm have just added a department for the manufacture of shuttles of all descriptions, to which they propose to give their best attention. They have also several important patents in bobbins that will shortly make their appearance.

In conclusion, we specially desire our readers to carefully examine the beautiful supplement in our present issue, which accurately and truthfully portrays a few of the important classes of bobbins produced by Messrs. Wilson Bros., Limited. Each sample has all the necessary particulars accompanying it to enable them to form a judgment for themselves.

THE TRIPLE EXPANSION STEAM ENGINE.

At a meeting of the Manchester Association of Engineers, held at the Grand Hotel, Aytoun-street, on Saturday night, Mr. G. B. GOODFELLOW (president) in the chair, Mr. W. J. JENKINS introduced, in an elaborate paper, a discussion on the question "Why is the triple expansion engine more economical than either the simple or compound?" The question, he said, might be stated more definitely in this way,—"Why does the triple expansion engine use less weight of steam per indicated horse power than either the compound or the simple engine?" That the triple expansion engine did this was proved by the fact that prior to its introduction a consumption of 16lb. of steam per indicated horse power per hour was considered to be an excellent performance, whereas since the introduction of the third cylinder much more than 13·5lb. would be called only a moderate result, and quantities as low as 12lb. had been recorded on very good authority. The general answer to the question was to be found in the initial condensation that took place in all practical steam engines, except those supplied with super-heated steam. The expanding of the steam through more than one cylinder enabled the resulting mixture of steam and water to be used to better effect, providing that a certain limiting ratio between the initial pressure and the number of cylinders was not exceeded. Mr. Jenkins proceeded to state his case in detail, the conclusion at which he arrived being stated as follows:—That the triple expansion steam engine is somewhat better as a heat using machine than the compound engine, regard being had to the quantities of heat contained in the steam when at the pressures found by experience to be those most suitable to each kind of engine; that the range of temperature in triple expansion engines is generally as great per cylinder as in the compound; that a range per cylinder of about 95 degrees seems about the economical limit, but up to that amount its effect is not important; that the triple expansion engine does not depend for its greater economy upon any reduction of temperature range alone, and that such range does not account for the very considerable initial condensation known to take place; that the important cause of economy in the triple expansion engine and in the compound is the use of a high-pressure cylinder, in which a very great proportion of the work of the engine can be done while the steam is at a high temperature, and with only a moderate range of temperature—the triple expansion engine, he added, had the advantage of such pressures that great expansion could take place without detrimental fall in temperature—and that moderate initial condensation in the high pressure cylinder is not particularly important where the re-evaporated steam can be used again, but it is very important in the low-pressure cylinder, because all the heat given up after release by re-evaporation is thrown away in the condenser. For the same reason it was best to use jackets—when any were used—upon the first two cylinders, where the heat imparted to the steam during the exhaust stroke could be used in the next cylinder. Jacketing the low-pressure cylinder might save initial condensation, and might be useful as a warming-up apparatus, but as the difference in temperature was greater during exhaust the flow of heat from the jacket would more than counterbalance the saving.

THE Swiss Spinners', Doublers', and Weavers' Association has decided to reduce production from April 1 next. In the cantons of St. Gallen, Appenzell, and Thurgau the distress amongst the embroiderers has become so severe that the cantonal Governments have decided to hold a conference with a view to relief measures or the discovery of a remedy. In Vorarlberg and Saxony the wages of embroiderers have been further reduced, and are now said to be little, if at all, above starvation point.

PUMPING ENGINES AND STEAM PUMPS.

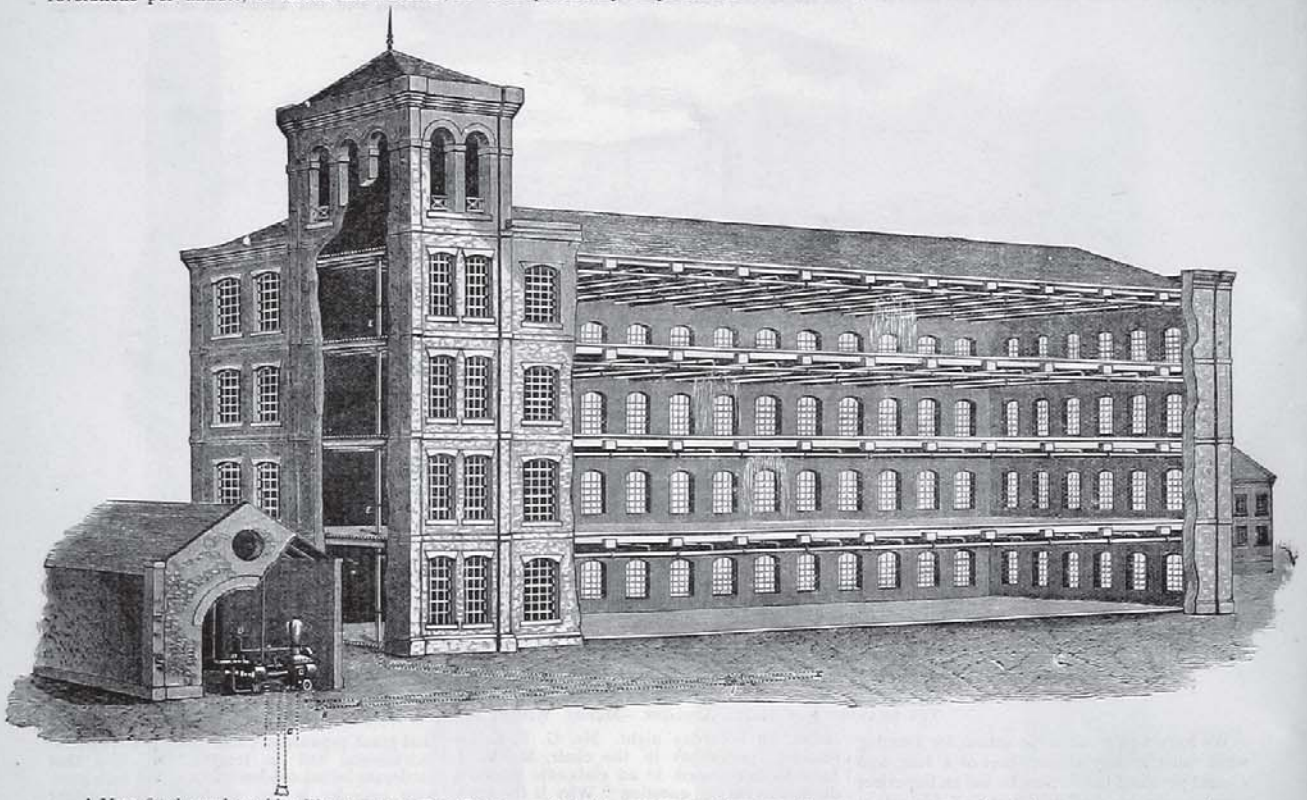
WORTHINGTON PUMPING ENGINE CO., LONDON.

The power of pumping engines has been increased enormously of late years. From the ponderous machinery employed in the emptying of a flooded mine to the smallest piece of pumping mechanism, the practical application of principles due to recent study is to be seen in every part since the days of Barclay's grasshopper or rocking-beam engine, the object of which was to keep the mouth of the shaft or coal pit perfectly clear of the engine, that nothing might prevent ready access to the pump rods and other gear. The centrifugal, or rotary, pump has only become familiarly known since 1851, a small pump, one foot in diameter, having at that time been exhibited at the Crystal Palace, where, working 150 revolutions per minute, it raised the water a foot high without any discharge; the centrifugal effort at that speed being equivalent to 62½ lb. The appliances of the olden time, although they did their work fairly well, shrink into the background when compared with some of the higher-class machinery due to modern inventors. This is a truism which perhaps need not have been repeated; for in every department of the machinery trade progress has necessarily been rapid during the age of steam. Perhaps finality has not yet been attained: nevertheless it may be confidently affirmed that the engines of the Worthington Pumping Engine Company, to which we are about to call attention, are sufficient, when used in conjunction with the excellent sprinkler appliances which are now within the reach of all mill owners, to ensure absolute safety in case of the commencement of a conflagration.

The Worthington Pumping Engine Company have paid great attention to the improvement of the available appliances for the various classes of work performed by their engines. Their Fire Pump, arranged in connection with sensitive automatic fire extinguishers, is the one to which we have particularly referred in the preceding paragraph. The pump is provided with an automatic pressure regulator so arranged as to keep a constant pressure in fire mains, dispensing with the tank in the tower of the mill. Combined with automatic fire extinguishers, these appliances render a destructive fire absolutely impossible. The importance of an independent water supply for mills, beyond the town supply, is universally recognised, as is shewn by the prevalent practice of placing a tank in the tower or upper storey of a mill. After a few sprinklers have been brought into operation, the tank soon gets exhausted of its contents; and the fact that the building would be then practically unprotected affords the opportunity of which the Worthington Co. have availed themselves in the production of their Automatic Fire Pump, the use of which is widely recommended by leading insurance companies. The pump is supplied with steam by the regulator as soon as the pressure in the pipes, due to working of the sprinklers, becomes reduced; and a supply of water is thus forced upwards as long as the sprinklers continue working. The safety draining attachment, provided with this Pump, withdraws the water of condensation from the steam cylinders, so that the machine can start promptly under all conditions, as it possesses no dead centre. It will be perceived from this brief description that there can be no question as to the prompt application of an abundant supply of water where this appliance is employed. The supply, indeed, might prove to be excessive in some instances; but it could not well fall short of actual requirements.

One of Worthington's Independent Condensers, adopted as the standard on Worthington pumping engines of the largest size, in preference to the connected air pump formerly employed, has been applied to an engine of 8,000 horse-power, the injection water of which amounts to 15,000 gallons a minute, or about 20,000,000 gallons a day. While running, the injection water of the condenser cannot be drawn in the steam cylinder of the main engine, the serious danger of flooding being thus avoided, and that, too, without the use of floats, check valves, or other automatic contrivances. Three years after its introduction the Worthington "Independent Condenser" was condensing the exhaust of engines aggregating over 60,000 horse-power. This was in 1888, since which time the quantity has been increased to a surprising extent.

So far we have only spoken of a few of the Worthington Company's specialities, which include air and circulating pumps, bilge pumps, boiler feed pumps, combined boilers and pumps, brewery pumps, compound pumps, compound condensing pumping engines, and compound condensing pressure pumping engines. We also note irrigating pumps, low-service pumps, marine pumps, oil line pumps, and oil refinery pumps. The Company's long list of pumps also includes packed plunger pumps, railway water supply pumps, sewage pumping engines, sugar refinery pumps, tannery pumps, tank pumps, and water ballast, all of which are fully described in their exhaustive catalogue. The Worthington pumping engines performed a notable task in 1876, when they supplied the water for the whole of the Centennial Exhibition, held at Philadelphia during that year. They also furnished the water supply for the Paris Exhibition in 1889, and now a contract has been entered into by which they



A MILL fitted complete with a WORTHINGTON FIRE PUMP, provided with AUTOMATIC PRESSURE REGULATOR, so arranged as to keep a constant pressure in the Fire Mains (dispensing with the use of a water tank in the tower), together with AUTOMATIC FIRE EXTINGUISHERS.

A Pump. **B** Automatic Pressure Regulator. **C** Suction Pipe. **D** Delivery Pipe. **E** Main Water Supply. **F** Arrangement of Pipes and Automatic Fire Extinguisher. **G** Supply Pipe from Town Service. **H** Check Valve shutting off Town Supply from Pump. **I** Check Valve to prevent water from Pump entering Town Main.

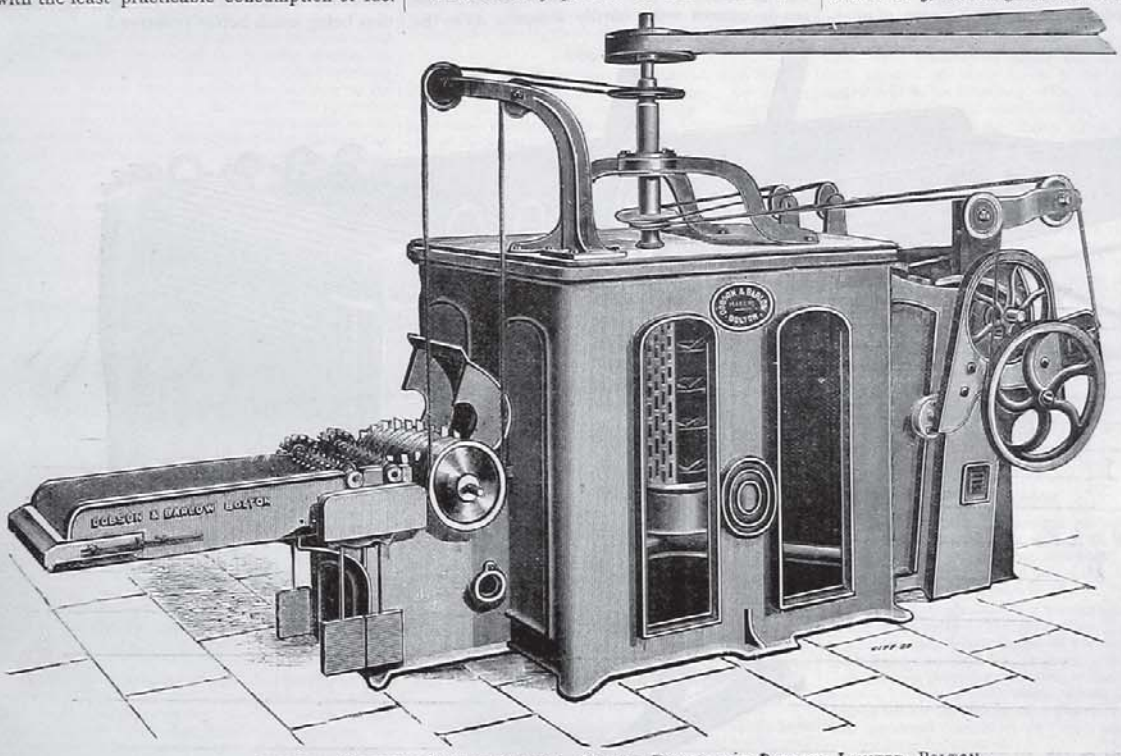
will furnish the entire water supply of the Columbian Exhibition to be held in Chicago in 1893, and for which four engines will be erected —two horizontal and two vertical, with a combined capacity of 42,000,000 gallons per day. These engines are also employed in forcing crude petroleum from the oil wells of the interior to the American seaboard—a method of transportation which partly accounts for the ability of shippers to offer this important article so cheaply in England and other consuming countries. This type of engine furnishes about 40 per cent. of the water supply in the United States, and its immunity from fracture or breakage has made it the favourite with the proprietors of the "pipe lines," as the petroleum conduits are termed. In the Worthington "High Duty" engine, the object of achieving the utmost possible amount of work with the least practicable consumption of fuel appears to have been attained. Theoretically, the highest expansion of steam means the greatest economy, most steam being used by a pumping engine when the steam follows the pistons from the beginning to the end of their stroke without any expansion. There is a limit of usefulness in expansion, however, marked by the point at which its gain is balanced by the cylinder condensation. In the Worthington High Duty engines as high grades of expansion are employed as are necessary to reach the most economical results. The uniform distribution of steam pressure, secured in other engines by means of a ponderous fly-wheel, is obtained in the Worthington duplex, direct-acting pump engine by other methods, which are considered superior. Expansion by means of compound cylinders alone with such pressure as is usually employed, had apparently formerly been carried to its utmost limit consistent with a due regard for economy. In order to further gain in efficiency special means were devised. A small attachment, which may be briefly described as consisting of two small oscillating cylinders attached to the plunger rod of the engine, effected the desired change. Greatly increased economy in running has been secured, while both in construction and quality of action the engine remains unchanged. With the Worthington compensating cylinders, the work put into and afterwards derived from them does not vary with the speed, the rate of expansion in the steam cylinders being constant under all changes in the rate of delivery of the pump. The work of the compensating cylinders can be thrown on or off the engine instantly by the attendant, and should the cut-off mechanism become in any way disarranged, it can be disconnected, and the machine run as a low-duty engine, just as though it had been originally constructed as such. A duty of 100,000,000 foot pounds can be considerably exceeded with the consumption of 100 lb. of coal in an engine developing 100 horse-power.

The ordinary pattern of the Worthington pump has two double-acting plungers, and is fitted with water valves of rubber or metal as required. This type is designed for boiler feeding, fire, hydraulic elevator, and general service, where the steam and water pressure does not exceed 160 pounds. The piston strokes range from 60 to 100 feet per minute; but the speed can be increased considerably in case of fire or other emergency. With two plungers, the pumping capacity, commencing at four to nine gallons per minute in the smaller engines, increases from 820 to 1,380 for the larger sizes.

The improved pattern Worthington water meter is another important contrivance which calls for notice here. It is employed by waterworks corporations to determine the amount of water used by different customers, and by manufacturers for measuring oils or other liquids into barrels or tanks. Its general principle is the reciprocation of plungers or pistons, each stroke of which is marked on the counter.

Before closing this brief reference, a word as to the valve motion, which is the prominent and distinguishing peculiarity of the Worthington Steam Pump. It is to the valve that the machine owes its exemption from noise or concussive action. Two steam pumps are placed side by side, and so combined as to act reciprocally upon the steam valves of each other. The one piston acts to give steam to the other, after which it finishes its own stroke, and waits for its valve to be acted upon before it renews its motion. The water valves thus seat quietly, and as one or the other of the steam valves must be open, there can be no dead point. The valve is an ordinary slide valve working upon a flat face over ports or openings, and it has not yet been superseded for use on locomotives and other forms of high-pressure crank engines. No trouble can be caused by freezing, as no water can collect in its cavities.

The Company publish an exhaustive catalogue, obtainable on application. The London offices are at 153, Queen Victoria-street, with a branch at 5, Exchange-street, Manchester.



IMPROVED VERTICAL BEATER OPENER.—MESSRS. DOBSON AND BARLOW, LIMITED, BOLTON.

IMPROVED VERTICAL BEATER OPENER.

MAKERS: MESSRS. DOBSON AND BARLOW, LIMITED, BOLTON.

Of the considerable variety of cotton openers in the market that known as the Crighton has very great merits, and has long been a deserved favourite. Its distinguishing feature is the vertical arrangement of the beater, which consists of a shaft carrying a series of discs, having blades or arms attached to them and arranged so as to form a reversed cone, the apex being at the bottom. The theory of its action is that when the cotton is fed to the lowest part of the beater, as soon as it is opened to a sufficient degree to render it amenable to the current of air acting upon it, it is drawn upward to the next tier of arms, further beaten and opened until it passes to the next higher, and so successively out of the machine. Thus it never gets beaten a moment longer than the necessities of the case require.

The machine as illustrated herewith, has been constructed with a careful endeavour to make it as perfect in all its details as possible.

It is built from extra strong patterns, designed to ensure absolute rigidity when at work. All the jointings are planed or milled, and every attention has been given to making all the details so firm as to enable it to be run at the highest speeds without any vibration. The facilities for ensuring perfect lubrication of all the working parts are improved. It is furnished with improved grids and beaters of very high opening and cleaning power, all the fibres of the material being thoroughly separated without damage or loss of lustre. The beater is composed of the vertical shaft, with its complement of seven discs of varying diameter, which are turned and balanced and furnished with steel teeth riveted to them. The feed funnel can be arranged at the back or side. All its gearing parts are strong and well guarded and all its pulleys balanced. The feed and delivery lattice can be driven by band or strap. It is important, in order to extend the capacity of opening machines, that the beater arrangements should be capable of adjustment to suit different classes of cotton. To accomplish this in this instance, the makers have invented and patented an adjustable and continuous self-lubricating footstep for the beater, by which the distance between the beater and the grid can be regulated. This footstep is constructed so as to hold about three pints of oil, which acts as a preventive to the heating of the shaft, and reduces the attention required and the danger of fire to a minimum. Messrs. Dobson and Barlow, Ltd., Bolton, make these machines with single or double beater, and combined with scutcher and lap machine. They are eminently suitable for all classes of short stapled cotton. They are made in two sizes, small and large; the former will open 25,000 to 30,000 lb. of cotton per week. The single opener, small size, occupies a space 8′ 9″ by 4′ 8″, and a large one 10′ 5″ by 5′ 2″; the double ones take respectively: small, 14′ 6″ by 4′ 8″; large, 16′ 6″ by 5′ 2″. These dimensions shew that they are compactly made.

The makers will be pleased to afford all further information that may be desired.

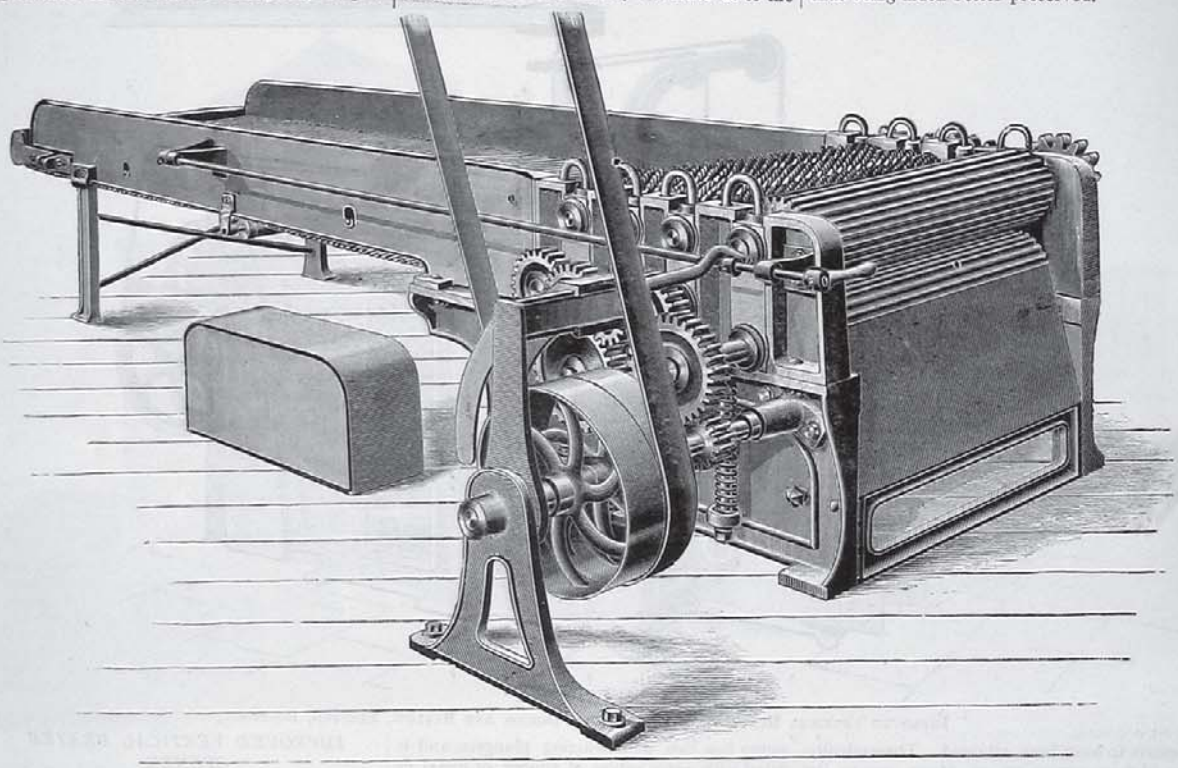
IMPROVED BALE BREAKER.

MAKERS: MESSRS. JOHN HETHERINGTON AND SONS, LIMITED, MANCHESTER.

We herewith illustrate another of these useful machines; in this instance made by Messrs. John Hetherington & Sons, Limited. The firm inform us that it is made from entirely new patterns, from designs that have been carefully made with a view to obviate the weakness that experience has shewn to exist in all the earlier types of this machine. The first ventures in this type of machine were necessarily tentative efforts, and the estimates made under those circumstances were hardly accurate as to the weight of the work to be performed, and the strength of the parts of the machine required to do it. The consequence was a far greater percentage of breakages than was desirable, especially in the teeth and gearing.

As observed above, the breaker illustrated herewith has been designed to obviate these weak points. Strength in all its parts, and particularly in the gearing—in which the breakages resulting from the high speed and the lifting of the coarsely-fluted rollers have hitherto been a source of great trouble—is especially prominent in this machine. The first, second, and third top rollers are made in segments, and the teeth are spirally arranged around their peripheries. The teeth are of the dog-tooth type, and are made in three patterns, each coarser than the other. The fourth or delivery roller is an ordinary coarsely-fluted roller. All the bottom rollers are fluted. The feeding lattice is so arranged as not to pass under the first roller, but is placed close up to it. This avoids the numerous breakages of the lattice strips that occur when it passes under the rollers. The facilities for lubricating all the working parts have been increased and specially designed to permit access without in any way disturbing the top cover or stopping the machine. When at work it is quite safe for the attendant, as all the gearing is so guarded and covered up that none can possibly, without wilfulness, get hurt.

In relieving the work of the scutcher, opener and finisher, the value of the bale breaker cannot be over-estimated, as by its action it pulls the matted masses of the cotton into small pieces, and sends it forward to the opener in a much more loose and open state than before, so that it yields to the strokes of the beaters much more easily and with less damage than would otherwise be the case, its strength and lustre thus being much better preserved.



BALE BREAKER OR COTTON PULLING MACHINE.—MESSRS. JOHN HETHERINGTON AND SONS, LIMITED, MANCHESTER.

The makers, who will be pleased to afford any further information, also supply distributing lattices, which can be arranged to carry the opened cotton in any direction to suit the requirements of spinners.

THE Leipsic Worsted Yarn Spinning Co. has declared a dividend for 1891 at the rate of 4 per cent., the rate declared for 1890.

THE United States Consul-General in London states that merchants consigning goods to the United States for sale still require to make a special declaration in addition to the ordinary Consular invoice. When goods are sold out-and-out no extra or special declaration is required.

THE balance-sheet of the West German Jute Spinning and Weaving Co., of Beuel, near Bonn, for 1891, shews a profit of £11,512, as against £5,287 for 1890. A dividend at the rate of 9 per cent., as against 5 per cent. for 1890, is proposed, £4,000 being written off to the depreciation and other accounts, or nearly double the amount written off from the balance for 1890.

News in Brief.

ENGLAND.

Accrington.

A report that Mr. George Bullough, son of the late Mr. John Bullough, had consented to become the Conservative and Unionist candidate for Rossendale at the general election in opposition to Mr. J. H. Maden, M.P., is officially contradicted.

Ashton-under-Lyne.

Work is in so forward a condition in connection with the building of the mill for the Minerva Spinning Co. that the structure is expected to be ready for the reception of machinery in the course of a couple of months. The machinery will be supplied by Messrs. Hetherington and Sons, Limited, Manchester, who, it is expected, will deliver a first consignment about the first week in March. Three other mills in the town are in the course of erection, and weather permitting the work will be pushed on with.

Blackburn.

At a meeting of the Committee of the Blackburn and District Weavers' Association on Monday evening the following resolution was passed:—"That the Particulars clause not having been attended to by most of the employers, though it should have come into operation on the 1st ult., according to the provision made in the new Factory Bill, 1892, this meeting is of opinion that something must be done for the purpose of enforcing the same, and this committee will at the earliest opportunity take proceedings, either through the law courts or in some other way, for the purpose of having the clause acted upon and for the purpose of testing the validity of the same. Such clause having been gained by legislation at great cost, we are not prepared to allow the matter to pass without a strong effort on our part being made to have carried into practical operation that which we are justly entitled to."

Bolton.

Mr. Nathan Pickering, of Bolton, has instructed Mr. Richard Threlfall, of this town, to replace all his jack frames with new ones, 7 in. lift, with Threlfall's patent winding and knocking-off motions also.

The thanks of the Corporation Parks Committee have been tendered to Messrs. Dobson and Barlow for removing the textile machinery from the Chadwick Museum and refixing the same at Mere Hall free of charge.

The statutory meeting of J. Chadwick and Brother, Ltd., sewing cotton manufacturers, Bolton, was held in Manchester, on Thursday, Mr. Herbert Greg presiding. The Chairman stated that the company had only been working two months, and there was no business to lay before the meeting. He was glad to inform the shareholders that the trade of the old company during last year was considerably better than the prospectus shewed.

The Watch Committee of the Corporation at their meeting on Wednesday had before them a letter from Mr. Peter Kevan, secretary to the Bolton Cotton Trade Mutual Fire Insurance Co., applying for the services of the superintendent of the Fire Brigade at mills whilst the water supply is shut off from the sprinkler installations during alterations and repairs. The committee resolved to accede to the application, the terms to be settled by the Mayor and Chairman.

Messrs. Wm. Knowles and Son, cotton spinners, of Bolton, have decided to replace a number of their mules with the "Threlfall" self-actor, and have just placed an order for same with the firm of Mr. Rd. Threlfall, of Bolton. Messrs. Knowles first tried the "Threlfall" self-actor about a dozen years ago, and have kept giving repeat orders for same ever since, having thus replaced almost all their mules in all their five mills.

Messrs. Horrockses, Crewdson and Co. propose establishing, on the approval of their workpeople at Moses Gate and Preston Mills, a pension scheme. The proposed scheme includes pensions for length of service, providing medical attendance in the case of sickness, payments during sickness and on death, etc. The workpeople will be asked to contribute a small amount weekly, and in case of leaving, the money paid will be returned. The firm will contribute liberally to the scheme. The operatives' society object to the scheme.

Mr. Thomas Jones, of the firm of Barlow and Jones, Ltd., cotton spinners and manufacturers, Portland-street, Manchester, and the Albert, Cobden, Prospect, and Egyptian Mills, Bolton, died on Tuesday, after a somewhat protracted illness, at his residence, Hawkhead-street, Southport. Mr. Jones, who was 73 years of age, had been connected with the Manchester trade over 50 years. He was one of the founders of the firm of Barlow and Jones, now a limited company, and he was still connected with the concern at the time of his death. He was a liberal supporter of the Church of England and the organisations connected with it. Politically he was a Conservative.

The will of Mr. Samuel Isherwood, late of Bank House, Sharples, near Bolton, bleacher, who died in December last, has been proved by Mr. Samuel Isherwood, son, and Mr. Edward Deakin, son-in-law, the executors, to whom administration was granted. The personalty is stated at £100,393 net. The testator bequeaths a legacy of £500 and the interest on £12,000 to his widow. To his son, Samuel, he gives the Bank House residence, and he directs that five separate sums of £8,000 shall be set apart for the benefit, as regards four, of his four married daughters and their children after them. The fifth portion is to be divided between the two children of a deceased daughter.

Bradford.

The power-loom makers in Bradford are very short of orders at present. One firm is working only three days, and one or two others are stopped altogether.

The death is announced of Mr. John Wilson, in his 82nd year. At one period he was connected with the firm of George Binns and Co., of Bradford, stuff merchants. Mr. Wilson, who was a member of the Society of Friends, was highly esteemed in Bradford.

Brighouse.

The strike of silk-dressers in connection with Messrs. Ormerod Bros., Limited, still continues. Up to the present the foremen in the "dressing" departments have been working at dressing silk, but on Tuesday one of them was the subject of a hostile demonstration in the street. The strike hands collected and met one of the foremen returning to his work after dinner. They hooted him, and in other ways shewed their dissatisfaction at his conduct. Several policemen were stationed near Alexandra Mill that night, but in the meantime, it is said, the foreman alluded to had given an intimation of his intention to cease dressing silk, and with this the strikers seemed satisfied, and there was no hostile demonstration. They are hopeful of getting another foreman to adopt the same course. The firm have already closed their Prince of Wales Mill, and the strikers are confident of compelling them to close their other premises—Alexandra Mill.

Bury.

A meeting of the men employed at the Hampson Mills Bleach and Dyeworks, near Bury, was held on Saturday. The chair was occupied by Mr. Alfred Shepherd, president of the district branch of the Bleachers, Finishers, and Dyers' Association, and the Bolton Executive was represented by Mr. James Fairclough. The meeting was convened to consider a dispute which has arisen at Hampson Mills, failing an amicable settlement of which it is not improbable that the operatives, numbering some hundreds, will resort to a strike. The question immediately at issue concerns the dyers, who seek a re-arrangement of their hours of labour so as to avoid working overtime. A deputation was appointed to interview the manager with the object of not only securing a redress of the grievances complained of, but also the reinstatement of several men who have been recently discharged.

Barnoldswick.

Messrs. Windle and Bailey, of Calf Hall Shed, have taken space at the Well House Mill for 384 looms, and will remove thereto to make room for Messrs. B. and E. M. Holden, who have taken the space thus vacated. Messrs. Eastwood and Maudsley will also shortly remove their looms from Long Ing Shed to the extension of Butts Mill. The space vacated by them at Long Ing has been taken up. These alterations will mean an increase of about 1,000 looms in the town.

Cleckheaton.

The Cleckheaton Chamber of Commerce have appointed Mr. Law and Mr. Wadsworth to represent the Chamber at the meetings of the Associated Chambers of Commerce in London.

It is stated that the Pyenot Hall estate (including the extensive mills and the residence), recently vacated by Messrs. R. and C. Goldthorp, has been purchased by Mr. Jonas Haley, of Cleckheaton (Messrs. S. Haley and Son, cardmakers), for the sum of £9,000.

Denton.

The strike of the silk hat finishers at Denton terminated on Monday.—It has extended over about four months. Under the terms of settlement the men return to work at a slight advance in the rate of wages, but consent to the withdrawal of a code of rules they previously insisted on—rules which, in the opinion of the employers, tended to cripple business.

Farnworth.

Mr. Alfred Topp, of Messrs. Topp and Hindley, has again consented to stand as County Councillor for this district, provided Mr. Alfred Barnes is retained as an Alderman, which is highly probable.

Haslingden.

On Monday, meetings of the 220 weavers on strike at the Commercial Mill, and of the 200 weavers on strike at Laneside Mill, were held for the purpose of seeing if some satisfactory arrangement could be come to for better work. Deputations were sent to each mill with instructions to ask for a better quality of work and an advance of a farthing a cut for weaving present beams. On the return of the deputations they reported that no satisfactory arrangements could be come to with the mill officials, and the weavers then decided to continue out on strike.

Heckmondwike.

On Tuesday the monthly meeting of the council of the Heckmondwike Chamber of Commerce was held, W. E. Firth (president) in the chair. A letter was read from Mr. B. Turner, of Batley, referring to the proposed formation of a Board of Conciliation for the Heavy Woollen District, and asking the Chamber to appoint delegates to attend a meeting of representatives of trade and labour councils to talk the matter over. The president and Mr. Houldsworth were eventually appointed to confer with a deputation from the Batley and other Chambers upon the matter.

Heywood.

We hear that Messrs. John Hetherington and Sons Ltd., have commenced filling the Yew Mill Co.'s mill, reputed on many hands to be the finest and largest mill in the kingdom. When completed it will contain about 112,000 mule spindles.

On Wednesday, at the Police Court, before Alderman Isherwood, chairman, Councillor G. N. Hodgkinson, and Mr. T. Popple, Messrs. John Gleave and Co., cotton manufacturers, Hooley Brow, were summoned for employing three women during meal-time. Mr. Pearson, inspector, said he found the three women taking "pieces" off the looms at 8.10 a.m. on the 15th January. Mr. George Fitton, manager, admitted that the women were there, but said he had warned them that they were not to work whilst the engine was stopped. The women afterwards admitted this to Mr. Pearson. The Bench decided that the firm had done their best to prevent working, and, therefore, they would only have to pay the costs.

Huddersfield.

The dispute between Messrs. A. Horsfall and Sons (Limited), dyers, Colne-road, and their workmen has been settled by the firm agreeing to the men's demand for a reduction of hours to 54 per week. The dispute had given rise to considerable ill-feeling and disturbances.

Keighley.

Mr. Hiram Haggas, principal partner in the firm of Messrs. Shelah Haggas and Sons, spindle manufacturers, died on Saturday afternoon, after a brief illness. He was the second son of the founder of the business. He was 41 years of age.

A fitting recognition of a service extending over a period of 40 years on the part of Mr. J. P. Parkinson, one of the principal officials of the firm of Messrs. Hick, Hargreaves and Co., engineers, etc., of this town, took place on Saturday afternoon, at their Soho Works, when a handsome gold watch, which had been subscribed for by the heads of departments and others, was presented to him on the occasion of his relinquishing his position.

The weaving industry of Keighley is experiencing a period of the deepest depression. Not one-half of the looms in the factories are running at the present time; although they number considerably less than was the case some years ago. The time was when Keighley manufacturers did a very considerable Continental trade, principally with France and Germany, but now there is no foreign trade in manufactured goods worthy of the name; and though up to the time of passing the McKinley Tariff Bill a good business was done with the United States the effect of that measure has been disastrous to the district. For years back well-known firms have one by one given up their weaving departments, and the trade is gradually leaving the district. One of the latest firms to take the step of giving up weaving is that of Messrs. J. Brigg and Co., of Calversyke Mills, one of the oldest manufacturing firms in the district. This firm's productions have been chiefly fancy goods, and up to a few years ago they employed several hundred weavers. Latterly they have greatly restricted their weaving operations, and now for the present, at any rate, it is their intention to discontinue that part of the business. In the case of another large establishment half of the looms are standing.

Leeds.

The employés of Messrs. James Reffitt and Sons, dyers, Leeds and Bradford, on Monday presented to Mr. A. Wilkinson, formerly connected with the firm, a handsome tea and coffee service and tray, as a token of esteem for his uniform kindness and courtesy towards them during the eighteen years he was with the firm.

Leigh.

Satisfactory progress is just now being made with the erection of the new mill by the Mather Lane Spinning Co., Limited, Leigh, which will make the third they have erected.

Messrs. Jas. Thorpe and T. T. Hayes, J.P., cotton spinners, Leigh, who represent the Leigh Division on the County Council, will, at the next election, in all probability, be returned unopposed.

The Chairman of the Leigh Science and Art Classes (Mr. W. E. Marsh) has forwarded the plans of the proposed technical school and free library to the South Kensington Science and Art Department for approval. It is anticipated that building operations will be commenced next month.

Liverpool.

A fire broke out early on Monday morning in a shed filled with cotton at Bramley Moore Dock, Liverpool, and the flames extended to the steamer "Ramon de Larranaga," which was unloading cotton, and which it was impossible to move from the dock. The fire was not extinguished until half-past nine, when the shed had been completely burnt out and the steamer seriously damaged. Two firemen were injured and taken to hospital. A watchman, who entered the shed at midnight, is missing, and has probably perished. The damage is estimated at £30,000 to £50,000.

London.

Probate duty has been paid on £125,262 as the net value of the personal estate of Mr. William Melles, Knight of the Legion of Honour, late of Sewardstonelodge, Essex, J.P., and of the firm of Melles, Jones, Reid, and Co., Cripplegate-buildings, fancy warehouseman, who died on December 25 last, aged 70 years.

Manchester.

The death occurred on Wednesday, in his 73rd year, of Mr. H. M. Lazarus, who for 50 years has been connected with the firm of Messrs. S. L. Behrens and Co., merchants, of this city.

Mr. John Fairbrother, cloth salesman for upwards of 30 years with the old firm of Messrs Absalom Watkin and Son, of this city, died on Wednesday, aged 73 Mr. Fairbrother was well known and highly respected.

The next meeting of the Insurance Association of Manchester will be held at the Manchester Technical School on Wednesday evening, the 24th inst., when Mr. T. D. Abbott, Insurance Surveyor, will read a paper on "Cotton Mill Risks." The cotton spinning and weaving machinery at the school will be in motion.

We learn that Messrs. John Hetherington and Sons have got the order for No. 3 New Bedford Mill, United States, which will contain about 60,000 spindles and preparation. Messrs. Hetherington have also on their books another order for a mill of 30,000 spindles in the same district. The firm have orders on their books for over 600,000 spindles.

Nelson.

On Monday, an exciting scene took place outside Messrs. Evans and Berry's Mill. On leaving the premises, those who had been working were received with hoots, jeers, and hisses. The tackler who is alleged to be the cause of the strike, on making his appearance had a stormy reception, and as he wended his way home the biggest part of the crowd followed him, hooting all the way. Policemen followed and escorted him home.

The Court-house at Colne was crowded on Wednesday, when several cases arising out of the strike of weavers at Walvenden Shed, Nelson, were down for hearing. The first was that in which James Lowe, a weaver, of Nelson, one of the pickets the strike hands employ about the mill, was charged with assaulting Hartley Farnell, carter, Nelson, whose daughter was working at the mill in place of the strike hands. Mr. Davies, a Nelson solicitor, appeared to prosecute, instructed, he said, by Messrs. Evans and Berry, the proprietors of the mill. He stated that an attempt had been made to compromise the matter behind the Court. Farnell refused to take the oath and give evidence, saying he didn't think the defendant would have struck him had he not spoken to Lowe first. The case was adjourned for seven days, the question of costs being reserved.—John Richard Hacking, a weaver, of Nelson, who had done picket duty for the strike hands, was charged with assaulting a weaver working at Walvenden Shed, named Charles Entwistle, as he was going home from his work on Monday night. Entwistle denied to the Bench that it was Hacking who struck him, and the Bench dismissed the case, their decision being applauded in court.—Emma Shuttleworth, widow, of Nelson, summoned a married woman named Elizabeth Stunstead, a neighbour of hers, for threatening to murder her. Complainant alleged that the threats were made to her because she had lodging with her some of the weavers working at the shed and taking the places of the strike hands. The defence was that the complainant was abusive to the defendant, and the Bench dismissed that case also.

Oldham.

The successor to Mr. Joseph Hilton as carder at the North Moor Spinning Co., is Mr. Pickup, formerly of the Parkside Spinning Co., Royton.

The new mill of the Royal Spinning Co, in Rochdale-road, is ready for roofing, and the mill of the Pearl Co., at Glodwick, is about being covered in.

Mr. H. Clough, formerly in the employ of Mr. Joseph Ball, electrical engineer, Oldham, has received the appointment of secretary to the Apethorne Spinning Co.

The appearance of the railway sidings in this district begins to indicate that cotton stocks are accumulating, while some of the bales bear the mark of having been wintered.

Mr. George Travis, assistant mule overlooker at the Leesbrook Spinning Co, has been promoted to the post of spinning master, rendered vacant by the death of Mr. John Kershaw.

Messrs. Saxon, engineers, Openshaw, Manchester, have satisfactorily completed the repairs to the engines at the Diamond Mill, off Middleton-road, Oldham. A new beam, connecting rod, etc., have been put in.

Mr. John Cottam, who for several years was the manager of the Olive Mill Co., has been appointed manager to the Ellen-road Spinning Co., Milnrow. This company's mill is now being filled with machinery by Messrs. Platt Bros. and Co., Limited, and will shortly be at work.

At the quarterly meeting of the Henshaw-street Spinning Company on Tuesday evening, one of the directors remarked that at a meeting of cotton spinners in Manchester that day, it had been resolved to form a new Federation of Employers, and five or six of the largest towns had already signified their willingness to join. He also stated that a large spinner in Ashton gave notice that one of the first matters he should bring before the Federation was the vexed question of yarn contracts.

At the Oldham Police Court, on Monday, Messrs. Thomas Wilde and Co. were fined 5s. and costs in three cases for employing women after legal time on Saturday, January 9th; Prince of Wales Spinning Co., 5s. and costs in six instances for employing six young persons during meal hours, on January 12th; and Mr. Simeon Holden, of Lowerhill Mill, was mulcted in a similar penalty in three cases for employing three young persons beyond legal hours as provided by the Factory Act, on Saturday, January 9th. In each instance the offences were admitted.

Attention is being turned in another direction than the floating of spinning companies, there having just been registered the Oldham Building Co., Limited, with a capital of £25,000, to "acquire land and property of every discription and generally to develop and turn to account the same;" and the Oldham Trust Co., Limited, with a capital of £10,000, to "carry on the business of a financial company in all or any of its branches, to form, promote, subsidise, or assist companies, and for other purposes." Oldham land companies so far have not proved "good things," as for many years some of them have not paid a dividend.

Ossett.

The Healey Old Mill, which has been a cloth factory for at least fifty years, is undergoing extensive alterations, in order to be used for extract and mungo and shoddy manufacturing.

Pudsey.

Damage estimated at from £1,200 to £1,500 was done by fire in the spinning room of Cliff Mills, Littlemoor. Messrs. W. Lupton and Co., woollen manufacturers, who are the tenants, are fully covered by insurance.

Ramsbottom.

The value has been sworn at £87,537 of the personal estate of Mr. Thomas Greig Stark late of Bank House, Ramsbottom, calico printer.

Saltaire.

Through the bursting of the main steam pipe, which supplies steam to the entire works, about 1,000 of the employés of Sir Titus Salt, Sons, and Co. (Limited), Saltaire Mills, were on Monday rendered idle. The firemen were getting up the steam between 5 and 6 a.m., when the accident occurred, it being found that the underground pipe between the two mills had burst. The hands have now got to work again.

Stockport.

A threatened strike at Messrs. Fernley's Weir Mills has been averted by the granting of a 5 per cent. allowance for the period of three weeks, during which time work was very poor.

Mr Sidney Gedge has definitely decided not to seek re-election for the borough of Stockport at the forthcoming general election. Mr. Jennings's threatened resignation has been withdrawn, and he promises to do all he can for the constituency if again returned to Parliament.

We learn that Messrs. Edward Green and Sons have received the order to furnish the boilers of the Stockport Ring Mill Co., with their well known economisers. It will be remembered we described these mills at length in our first issue this year.

Wigan.

Mr. Nathaniel Eckersley, D.L., of Standish Hall, Wigan, and Carlton Manor, Bradford, died on Monday night at Standish Hall after a few weeks' illness. Mr. Eckersley was one of the most prominent men in Wigan. For 40 years he was a member of the Corporation, on six occasions was elected Mayor, and sat as member for the borough from 1866 to 1868 and from 1883 to 1885, retiring in the latter year. He was appointed a county magistrate in 1850, and filled the office of High Sheriff of Lancashire in 1878. In 1873 he entertained the Prince and Princess of Wales upon the occasion of their opening the Royal Infirmary. He was identified with most local improvements, especially the new market scheme and public park, towards which he contributed £2,000. He built Poolstock Schools and St. James's Church, Wigan, and was the donor of the Leyland Free Library and Park at Hindley. He was chairman of the Wigan Junction Railway, a director of Parr's Bank, and head of the large cotton-spinning firm of James Eckersley and Sons, of Wigan. Mr. Eckersley was 76 years old, and was highly respected by all classes.

SCOTLAND.

Dundee.

Some splendid profits have been made by Dundee merchants who have sold their jute. One has cleared upwards of £30,000, while others are credited with profits well into five figures.

On Sunday morning a fire broke out in a store in connection with Temple Mill, North Tay-street, Dundee, belonging to Messrs. D W. Baxter and Co. The store was partly filled with raw jute and dyed yarns. The damage to buildings and materials is estimated at £1,000.

On Saturday afternoon the second annual festival and assembly in connection with Hillbank Linen Works was held in the Upper Victoria Hall. Mr. William Young, manager of the works, presided, and there were about 450 of the workers with their friends and relations present.

The value of declared exports from the Consular district of Dundee, Scotland, to the United States of America during the quarter ending 31st December, 1891, was $2,433,418—the largest in amount from Dundee during the last quarter of any year. The increase in the quarter over the corresponding period last year is $397,961.

A meeting of jute spinners and manufacturers was held yesterday week for the purpose of considering the propriety of putting their works on short time, in consequence of the great scarcity of the raw material. It was found that the large majority of the trade was in favour of short time being adopted, and a committee was appointed to wait on the firms who have not yet signed the agreement, and report to another meeting. The adjourned meeting of spinners and manufacturers was held on Tuesday to consider further the proposal to run short time in the mills for six months. The Committee appointed last week reported that eight spinners and seven manufacturers still withheld their signatures to the agreement, and in consequence the meeting was again adjourned to allow the Committee to wait on these firms, and state the result of their interviews at another meeting to be held yesterday.

Glasgow.

The following table gives the value and destination of the exports of cotton and linen goods from the Clyde for last week, and also the totals of the previous week. The first line refers to *cotton* goods, and the second to *linen*:—

India and China.	U.S. and Canada.	W. Indies & S. America.	Australasia.	Africa and Egypt.	Continent.	Totals.	Totals for year to date.
£22,278	13,833	—	397	1,460	110	38,073	590,379
—	24,213	—	106	38	21	24,378	150,754

Montrose.

At a meeting of the Town Council last week it was stated that Mr. James D. Gibb, Bervie, had applied for an acre of ground at the South Links on which to erect a mill. It was agreed to expose the ground in question to public roup.

IRELAND.

Belfast.

The hope held out this time last year of telephonic communication with Dublin and intervening towns is now on the eve of being realised. Also, the National Telephone Co. and the Telephone Co. of Ireland have at length been able, telephonically, to join hands, and within a few weeks Belfast merchants will be able to speak to their friends in the Irish metropolis.

The general annual meeting of the Linen Merchants' Association was held in the Linen-hall Library, on Tuesday, the president, Mr. Samuel Black, J.P., in the chair. The annual report of the Council stated that there had been no diminution in the number of the members, and that the accounts for the year ended December 31st shew a balance in the hands of the treasurer. The report was adopted. Mr. William R. Patterson was elected president and Mr. Charles H. Richardson vice-president for the ensuing year.

Co. Derry.

The great bulk of the flax is now scutched in this district. Some mills are already stopped, and others will soon be. On the whole the flax crop of 1891 may be taken as an average one. Flax seed is likely to be dear for the coming season. This, however, will not have much effect on the area sown.

Co. Tyrone.

Flax, which had fallen as much as 2s. 6d per stone lately in this locality, is beginning to look up again. It is expected that the supply is likely to fall considerably short of recent years, which, of course, will have a tendency to raise prices. Tow is also much lower in price than formerly A few lots of flax in this neighbourhood reached 11s. 6d. per stone.

Miscellaneous.

REMINISCENCES OF DUNDEE'S TRADE.

To any one who can recall the condition of trade in Dundee during the second and third decades of this century its present advancement must appear wonderful. Frequent allusions to Old Dundee as regards its buildings have been recently made, but the increase and improvement upon its staple business is quite as remarkable. After the close of the Continental war at Waterloo trade became for a few years dull in the extreme, and the working classes suffered greatly from want of employment. Business generally was bad, and from deficient harvests food was at several points both scarce and dear. Taxation to meet the immense increase in the National Debt was heavy, having been charged on many of the necessaries of life, such as corn, salt, soap, leather, etc., and, of course, articles of luxury did not escape. Discontent spread considerably in many of the manufacturing districts, so that much anxiety existed among the governing bodies, both national and local. Dundee proved no exception. Meal mobs arose such as were experienced at the opening and during the first decade of the century, so called because they originated in opposition to the exportation of meal for military supplies on the Continent. Sedition was occasionally prevalent in the manufacturing districts of the country, and among the flax-dressers and weaving classes in Dundee especially.

The West India colonies were our best customers, chiefly for Osnaburgs, the great staple article of Dundee manufacture, relatively even more so than 10½ ounce 40-inch Jute Hessian is now. Flax was imported from Russia and Prussia, but was also grown in this and the neighbouring counties, and during the first decade of the century was spun into yarn by the ladies of almost every house by hand-wheels. This continued in the second decade, but was largely supplemented by spinning mills, chiefly by water power, in the country districts. An important yarn market for the town and surrounding country, was held weekly on the High-street, where the manufacturers bought it in small quantities, sorted it, and after having had it washed in the plash-mills on the Dighty, dried it in the open air on "booms"—long poles extended between rows of high masts. These were very familiar objects in the town, and formed the insignia of the manufacturers, being erected in their gardens. It was then, after being warped on warping mills by hand, given out to weavers all over the town and country around. Almost every working man's house had a hand-loom therein or adjoining. Great skill was necessary in buying the yarns, there being no standard of uniformity either in its weight or colour. Money was thus spread amongst the community, and money was then scarce and greatly more valuable than in recent times. Hence the value of Dundee manufactures was much more per square yard than now. The cost of weaving a web of Osnaburg (a name evidently derived from the Germans), 144 yards long, was nearly as much as would nowadays buy a web, nominally the same, entire. The name "green cloth" arose from the fact that the Osnaburgs and the other fabrics (the latter chiefly "4/4 Forfar sheetings," principally for home trade) were then all made of green, *i.e.*, unbleached, yarn. The warps were 3 lb. flax, and the weft 6 lb. flax tow yarn, with very little variety, but occasionally with flax wefts, and called Strelitz Osnaburgs. During the second decade several flax spinning mills were erected in various parts of Forfarshire and Fifeshire, and on the Ericht at Blairgowrie, almost all of small size, and worked by water power. These, however, as also those of the other surrounding districts, were chiefly allied to Dundee as the business market centre for flax, yarn, and cloth. Being a seaport for imports of flax and coals, and for coasting exports of manufactured goods to London, Glasgow, Liverpool, and Newcastle by smacks, it possessed a general command of the linen trade of the East Coast of Scotland. These advantages it to a large extent possesses still, especially of being the central commercial market for a large surrounding district, which largely accounts for its rapid increase of population and the various trades, such as shipbuilding, connected therewith.

One of the most notable men of the period was "Justice Blair," of Cookston, whose office was in the Murraygate, and who, it may be said, reigned supreme over the linen manufacturers as Stamp Master. He was succeeded by Mr. John Alison, of Montpelier, who built the house in Perth-road subsequently occupied by Sir David Baxter, and now by Mr. Walter Shepherd, Every web of linen was examined and stamped by inspectors appointed by the Stamp Master, and a Mr. Guild and three others long acted in this capacity. A fee was paid for each web to the Stamp Master, from which a considerable revenue accrued. Those webs which were not perfect in all respects were stamped "faulty," and sold considerably cheaper, and very faulty webs were cut in two or more pieces. An incident as shewing that some of our forefathers were not lacking in the quality styled "cuteness" is worth narrating. A certain merchant was generally a ready purchaser of goods so stamped, and by selling them in some foreign markets where the word "faulty" was often thought to stand for the name of a village in Forfarshire of fame superior to Dundee, was thus long able to realise a substantial profit; but such stamps were generally cut off on exportation.—*Dundee Advertiser.*

LACEMAKING IN NORTH HANTS, BUCKS, AND BEDS.

In November last, the association, which has been formed under the presidency of the Countess Spencer, for reviving the cottage industry of lace-making in North Hants, Beds, and Bucks, requested the Department of Science and Art to cause a report to be made on the subject and its connection with the movement to promote technical instruction in those counties. The Department of Science and Art deputed Mr. Alan Cole to draw up such a report, and this has now been printed for circulation.* It is illustrated with ten pages of woodcuts from specimens of the various kinds of lace that are made in the three counties. "Broadly speaking, there are three main divisions or classes of pillow-lace so displayed. One, the point net Bucks lace is a sort of adaptation from the Lille, Arras, and Mechlin laces with a small mesh ground of the 18th century. A second is a sort of Maltese lace with details which recall those in the 'merletti a piombini' of the 16th century. A third is torchon for narrow edgings and insertions." These makes of laces are apparently produced with equal skill at all the villages which Mr. Cole visited. But hardly any of the laces rise to any high level in ornamental design. They are produced in fairly considerable quantity, but are so closely like machine lace in ornamental effect as to come into almost direct competition with it. Thus the rate of wages which a pillow-lace-maker can command is, on the whole, very low. Nevertheless, as Mr. Cole's report shows, the lace-makers cling with fondness to their industry, and so meagre an earning as 2s. 6d. or 3s. a week is welcomed by them. In houses which have to depend upon outdoor relief of, say, 2s. 6d. a week, an additional earning of 2s. 6d. a week is clearly important in all ways. Of still greater importance are the possible similar earnings of a wife and a daughter in the home of an agricultural labourer who may precariously make 13s. or 14s. a week.

The association consists in the main of a number of clergymen's wives, who, in their respective villages and districts, look after the lace-makers, supplying them with materials, threads, etc., at the lowest cost, and with advice as to the kinds of laces for which a sale can be found. In past times this work of supervision and organization was performed by the managers of lace schools. These old lace schools have become extinct, very chiefly through the influence of factory Acts and legislation for elementary education.

Objections have been raised against the revival of this cottage industry, and these are briefly stated on the last page of the report, which, however, concludes with the expression of an opinion by Mr. Cole that "whilst it is possible to conjure up all sorts of objections to a domestic industry like lace-making, it is quite as easy to adduce facts and evidence in favour of it, as a means of improving the circumstances of agricultural families, and of fostering a healthy independence in old age."

* Department of Science and Art of the Committee of Council on Education. Report on Northampton, Bucks, and Beds Lace-making, November, 1891. By Alan S. Cole. London: Printed by Eyre and Spottiswoode for her Majesty's Stationery Office.

The suggestions in regard to technical instruction, which are put forward in the report, are, briefly, that instruction in the elements of pillow-lace making should be treated in elementary schools as a branch of manual instruction, aided by grants from the Department of Science and Art; that the county councils of the three counties concerned should offer various sets of prizes to be competed for by lace-makers, and by competent students of ornamental design at schools of art and art classes; and that other prizes should be offered for making experimental pieces of lace from selected prize designs. These initial steps, if taken, might, it is thought, lead to the employment of qualified teachers at various centres and the development of a healthy system of technical instruction beneficial to the lace industry.

In the six villages of Spratton, Pauler's Pury, Wicken, Padbury, Ridgmont, and Lacey Green, which are reported upon, there are at the present moment over 300 lace-makers at work. No estimate is given of the total number of lace-makers in the three counties. But it is not unlikely that there are between two and three thousand of them. Under a carefully worked scheme this number would doubtless soon be doubled. As far as may be gathered from the report there seems to be little reason why as good a trade as formerly existed may not be driven in these English-made laces, which in mere technique—though not, perhaps, in freshness of ornamental effect—are equal to the pillow-made torchons and heavier makes of laces imported from abroad. The present tendency of these English laces is to imitate foreign laces without much discrimination as to novelty, and if change of pattern is asked for, to fall back upon the old and often worn-out patterns of 30 and 40 years ago.

It is reported from Mulhouse that numerous operatives are being dismissed from the Alsatian spinning mills.

Reminiscences of Old Manufacturing Days.—On Tuesday evening an interesting discussion took place on this subject at the Yorkshire College Textile Society. The subject was opened by Mr. W. Fox (Leeds) and Mr. John Bradley (Kirkstall), who related incidents which occurred in what was called the "Black time," when John Pallit, the agitator, was going through the country calling on men to strike for higher wages. At this time spinning was done at the homes of the workpeople, who had to provide their own jennies, bobbins, etc. A good spinner could earn 5s. 3d. per day, but he had to work hard, and employment was irregular. Weavers were able to earn 30s. per week when continuously employed, but as they had to break off to size the warp, etc., this was considerably reduced. At this time (about 1840) the cost of spinning and weaving per yard of cloth was about 1s. 2d. in wages alone. As a proof that the introduction of labour-saving machinery did not lower wages, as was at that time anticipated, it was shewn that 40 to 50 years ago workers in the woollen industry commenced work at five or six a.m. and finished at seven or eight p.m., fillers earning 6s. per week, piecener 3s., and willeyers 13s. to 17s. The wages paid to-day are—fillers 11s., piecener 8s., and willeyers 22s. to 25s. In Morley there were then only three mills, with 27 sets of machines, each set supplying four hand-looms. At the present time there are 31 mills, with 211 sets and about 2,500 looms. There was a large attendance. Reminiscences were also contributed by Messrs. Philip Bradley, James Mathers, P. Grimshaw, Professor Beaumont, and others.

A City Packed Full of Cotton.—The New Orleans *Daily Picayune*, of the 25th January, gives the following account of the plethora of cotton in that city:—The crop of the past year was certainly something phenomenal. It does not make much impression on the mind to be told that the cotton acreage of the United States is 19,000,000 acres, and that the whole crop of the year is 8,674,000 bales, and that its gross value is 390,000,000 dols. Figures over a few hundred mean nothing to the average mind. But if one wants to get a realising idea of the magnitude and importance of the cotton business, let him walk out into that district of our city that lies between Annunciation-street and the river from Delford-street up almost to Jackson, and look about him. He will find that this whole immense area is devoted almost exclusively to cotton yards. They vary from half a block to two blocks and more in size, enclosed by high brick walls, and surrounded by spacious sheds of brick with slate roofs. These sheds to-day he will find packed full of cotton, stacked up to the very roofs, till another cannot be got in, and the whole open space between so crowded with bales that there is no place to walk between There is no room for any more, and the handlers have been compelled to obtain the city's permission to stow the surplus temporarily on the walls around the presses. The sheds and cotton platforms of the various railroad companies are literally choked up with cotton, which the busy floats and drays, that blockade the streets with constant processions, cannot keep out of the

way of the piled-up trains that are constantly arriving. The steamboat landings are covered with cotton, and even the public squares have to be utilised to store it away in. Annunciation Square is literally fortified with rows of cotton bales, two deep, occupying the sidewalks on all its four sides, with scarce openings enough to allow ingress and egress. The goats that inhabit the neighbourhood enjoy it. They are even fonder of the snowy staple than of theatrical posters, as the holes that they dig into the bales where they have been cut for samples testify, and the watchmen, whose business it is to guard the cotton, get abundant exercise chasing them away. Such a blockade of cotton as exists here now is quite unparalleled in the history of our city.

HONITON LACE AGAIN.—Honiton lace will not die out if newspaper notices of one kind and another can preserve it from extinction. There was a time when the workers at it could be counted by the thousand, when employment was plentiful, if not too well paid, and when dealers in it could sometimes leave substantial fortunes behind them at death; but all that is looked for or hoped for now is that some means may be found of keeping the art-craft from coming to a full stop. In all probability the end would have come before now but for the patronage of her Majesty, who had Honiton lace for the trimming of her own bridal dress, and for each of her daughters as they were married, besides sending orders to an Exeter dealer almost every year; but not even Royal support can hold a trade up when the props of fashion are being withdrawn, and commercial competition is undermining the foundations. There have been many causes assigned for the decay of the industry, and almost as many plans suggested for its improvement, but in both respects the lace schools, which were once found in every village, appear to be at present the most prominent subject. Through the decline of these lace nurseries it is believed that stagnation has come about; by giving them a fresh start it is thought that a bright future might yet be in store for the lace districts of Devon. These are the opinions of a writer in the *Graphic*, in which an illustration of an existing lace school is given, and "prompt encouragement" is considered to be the only means by which the occupation can be maintained, because the old workers, who alone have the ability to produce the finer patterns, are but few in number, and there are none to succeed them. The young girls who are paying any attention to lace-making are only set to learn the cheaper and ordinary designs, for which there is any demand. It seems a pity—a thousand pities for that matter—that one of our few surviving village handicrafts should be on the down grade with disaster before it, if an effort can save it. But it is of little use to appeal to sentiment, and almost as little to think of setting up lace schools again. At the best, they are not in accord with the conditions of modern education, and, at their worst, they would be impossible. It is as well to say good-bye to lace schools as they are and have been. But there ought to be some way of getting lace-making generally taught as a part of technical education in the district, and by this means hereditary aptitude in the children and the knowledge and skill of surviving lace-workers might be utilised together.—*Warehouseman.*

Textile Markets.

COTTON.

MANCHESTER, FRIDAY.

The staple trade of Lancashire has developed no new feature during the past week. It is difficult to discover any prospect of early improvement, nearly all the circumstances usually affecting prices seeming to conspire to prevent change for the better. At the present very low rates spinners appear disposed, and it may be properly and wisely so, to replenish their stocks of cotton. The great desirability, as we have on previous occasions observed, is that any buying they may engage in should not be in such volume as to force the market into a condition of excitement and start prices on an upward movement such as cannot be sustained. During part of last and the past week the trade has gone to the verge of this line and a very slight upward movement has consequently occurred. The circumstances, however, operating in a contrary direction are such as to prevent its making much progress. Trade continues without relief to any material extent. The relationships of the employers and their workpeople are far from being what could be desired, and to crown all Messrs. Neill, the great cotton people, issued on Tuesday a circular in which they have carried their estimate of the current crop up to 9,000,000. They have thus by successive steps reached the point fixed upon months ago in this report, and to which we have steadily adhered. Should this vast figure be ultimately attained, it is not likely that prices will yield much beyond the present point. Our anticipations are that when the figure stated becomes actually assured the price of middling American may fluctuate between 3¾d. and 3½d. per lb., with a tendency to hover about the latter figure. Merchants hardly need be deterred from operations on such a basis as the present owing to any fears of a serious further decline. A considerable amount of discussion has recently occurred in both English and American prints as to the disastrous effects these rates may have upon the spring planting, and planters on the one hand are being urged to reduce the acreage under cotton and to devote their land to something else. On the other hand the extreme probability of their adopting this course is being urged to induce the trade to buy more actively and pay better prices, in order to obviate the risks of a scarcity and its fearful consequences should it occur. It is quite safe to say that very little effect will arise from either of these arguments. Vast industries are not set aside because of one adverse season.

COTTON.—On Saturday last the Liverpool market opened with a subdued tone, but as the day wore on an improvement took place, the demand increased, and prices of American became firmer, with a tendency to harden. Other growths were unchanged. Futures fluctuated and finally closed at an improvement of from ½ to 1½ points in the various positions. As has so often been the experience of the market, this better feeling was very short lived. On Monday rumours regarding Messrs. Neill being about to issue an enlarged estimate became current, and the market visibly weakened all round. Futures opened with an advance of 3 points, but this and more was afterwards lost, the market closing at a net decline of 1 to 1½ points on the day. On Tuesday there was again a recession in the strength of the market, though a moderate spot demand prevailed; prices declined to a point that was very near bringing about a reduction in the official rates for American. Other growths unchanged. Futures, after several fluctuations, closed with a loss of 2 to 3 points on the various positions. On Wednesday Liverpool developed a more cheerful feeling, though without any increase of demand. Cotton was harder, and there were fewer irregularities in price. Other growths were without material change. Futures opened 1 to 2 points higher, then rapidly improved, receded, and again advanced, closing steady at a net advance of 2½ to 3 points on the various positions. Yesterday the market manifested no change, a fair business passing in spots at unchanged rates. Futures went down 1 to 1½ points on the day.

The following particulars of the business of the week are from the official report issued by the Liverpool Cotton Association:—

	Import.	Forward.	Sales.	Stock.	Actual Export.
American	76,657..	67,275..	60,510	1,438,120..	4,723
Brazilian ..	— ..	865..	350..	40,590..	—
Egyptian ..	4,664..	3,814..	2,070..	120,500..	236
West Indian	2,317..	800..	880..	29,110..	11
East Indian	820..	1,647..	1,150..	44,740..	1,500
Total ..	84,458..	74,401..	64,960	1,673,060..	6,470

The following are the values of futures at mid-day on each day of the week—American deliveries—any port; bases of middling: low middling clause; (the fractions are in 64ths of a penny):—

PRICES OF FUTURES AT 1.30 P.M. EACH DAY.

	Saturday.	Monday.	Tuesday.	Wednesday.	Thursday	Friday
February..	3·50 v	3·51 52	3·46 47	3·49 50	3·48 49	3·44 45
Feb.-Mar..	3·50 v	3·51 52	3·46 47	3·49 50	3·48 49	3·44 45
Mar.-April	3·51 52	3·53 b	3·48 b	3·51 s	3·50 51	3·46 47
April-May.	3·54 55	3·56 57	3·51 52	3·54 55	3·53 54	3·50 s
May-June.	3·58 b	3·59 60	3 55 s	3·57 58	3·57 s	3·53 54
June-July..	3·61 62	3·63 v	3·58 s	3·61 s	3·60 b	3·56 57
July-Aug..	4·0 1	4·2 b	3·61 b	4·0 b	3·63 40	3·60 s
Aug.-Sept.	4·3 4	4·5 s	4·0 b	4·3 b	4·2 3	3·63 b
September.	4·6 b	4·7 8	4·3 v	4·6 b	4·5 b	4·2 s
Sept.-Oct..	4·6 b	4·7 8	4·3 v	4·6 b	4·5 b	4·2 s
Oct.-Nov..	—	4·10	—	—	—	—
Nov.-Dec.	—	—	—	—	—	—
Price of Mid. American.	3 13-16	3 13-16	3 13-16	3 13-16	3 13-16	3¾
Estimated Sales including Spec. and Export.	10,000 1,000	10,000 1,500	10,000 2,000	12,000 1,500	10,000 1,000	8,000 1,000

The following are the official quotations from the same source:—

	G.O.	L.M.	Md.	G.M.	M.F.
American.....	3 7/16 ..	3 5/8 ..	3 13/16 ..	4 ..	4 1/4
			M.F.	Fair.	G.F.
Pernam.....			4 9/16 ..	4 9/16 ..	4 9/16
Ceara			4¼ ..	4½ ..	4¾
Paraiba			4¼ ..	4½ ..	4⅝
Maranham			4⅜ ..	4⅝ ..	4⅞

	Fr.	G.F.	F.G.	F.G.	Gd.
Egyptian		4½	4¼	4⅞	5 3/16
Ditto white		4¾*	4⅞*	—	5¼*

	Fr.	F.F.	G.F.	F.	G.F.	Gd.	F.G.	Fine.
M.G. Broach ..	—	—	—	—		3 5/16	3½	3¾
Dhollerah	2 13/16	2 15/16	3 1/16	3 3/16		3 5/16	3 7/16	3 9/16*
Oomra	2⅞*	3	3 1/16	3¼		3⅜	3½	3 9/16*
Bengal	—	—	2¾*	2⅞*		3 1/16	3¼	3 5/16*
Tinnivelly	3 3/16*	—	3⅜	3⅜		3 11/16	—	—

* Nominal.

YARNS.—Last week the turnover in yarns of all descriptions was unsatisfactory, and had it not been for a slight improvement in the closing days would have shewn up badly. On Saturday there was the usual indifference to attempting business on any considerabe scale. On Monday little change from Friday was visible in the yarn market. Only a small enquiry was anywhere discoverable on either home or export account. On Tuesday spinners found very little if any improvement in the demand for their productions in any section of the market, and prices were the turn easier. There was a better enquiry met with for the Japan market, which has latterly been very slack, and some business was put through on account thereof. Taken all round the trade in yarns was unsatisfactory in both volume and quality. On Wednesday a little improvement was experienced in the amount of transactions brought to book, but the total was not large, and the prices were concessions. A little more cheerful feeling amongst producers of bundle yarns became visible. There was a little more general enquiry for yarns yesterday, but its strength was not such as to effect any further change in the conditions.

CLOTH.—The cloth market last week towards the close became a little more chequered in its business aspects, a small scattered demand having sprung up to relieve the uniform dulness of the general appearance. Little, however, of this was felt on Saturday, there being hardly any fresh business apparent. On Monday the mail advices from India were far from encouraging, owing to the depressing outlook regarding the crops. Some enquiry on China account was met with, but it was not sufficient to inspirit the market. Little that was favourable came to hand from other sources. There was scarcely any variation in this respect on Tuesday. Some retail business was done, but transactions of magnitude were few and far between. Everywhere the principle by which buyers seem to be governing themselves is to buy very little, and, if necessary, to buy often. Whatever may be the contingencies of the future, they seem determined not to be caught under heavy contracts. On Wednesday there was a slight improvement upon this disposition, buyers shewing themselves rather more disposed to operate where they could get their prices accepted, and a few fairly decent transactions were recorded. The cloth market yesterday shewed the presence of a moderate enquiry for Eastern markets, and a slightly increased one for miscellaneous articles. Taken altogether, however, the volume of trade passing is far below what it ought to be.

To-day the market is quieter in all departments owing to the weakness of Liverpool, where cotton has suffered another relapse, American and Indian both being reduced 1/16d.

WOOLLENS AND WORSTEDS.

BRADFORD.—Business in wool is still confined to purchases to cover the immediate requirements of spinners. There is no change in prices. Mohair and alpaca are slow. The yarn market is without improvement. The demand for export is of a restricted character. The orders received by merchants from abroad are of a very meagre character, and they place only a very limited number of orders. The piece market is without any new feature. A moderate amount of business is doing in dress goods for the home market, as well as in goods for American export. Many manufacturers are in want of employment for their machinery.

HUDDERSFIELD.—The general improvement in trade is slow, and orders continue to be given with caution. For the best fancy cloths of superior designs and good colouring there has been a fair enquiry. At nearly all the mills in this district short time is being worked, but it is accounted for by the circumstance that fast looms are now almost universally employed here, and therefore they turn out a much larger quantity of cloth than could possibly be turned out in the old looms which they have superseded, and thus much short time is largely brought about.

ROCHDALE.—Business has proved somewhat disappointing, even sorting-up orders having turned out to be below expectations. Manufacturers will soon begin to prepare for the coming season. As there is n scarcity of stocks on all hands, and the firmness shewa in the price of the raw mater al indicates a good

prospect for the flannel trade, manufacturers are looking with more confidence to the future. At present prices keep without change, and the mills generally are working full time.

GLASGOW.—Messrs. R. Ramsey and Company, wool brokers, in their report dated Feb. 16th, 1892, say:—There is no change for the better in the wool market this week. Business has been quiet, and altogether there is a decided want of animation about the trade generally. Wools are well held, but the tendency is to easier prices. The supply of sheep-skins has been rather lighter, but mostly of good sorts, which met a fair competition at about recent rates. The sale of both pelts and skin wools still operates against improved prices.

FLAX AND JUTE.

DUNDEE, WEDNESDAY.—The market continues in a state of great depression. *Jute* is held for prices no spinner can pay, and manufacturers, while offered yarn under the cost price, fail to get buyers for jute goods to meet their costs. In these circumstances, one hears on all hands of looms being put off and of workers being warned. The trade met yesterday, but as unanimity regarding the proposed short time seems impossible, the meeting was adjourned till Friday. In some form, shortened production now seems inevitable. There has been very little business done in jute during the past ten days, and some holders would evidently, if they could, realise their profit. Buyers, however, act with the utmost caution, so that very little business is reported. *Flax* is firm, but owing to the smart rise in brown flaxes there is less doing. Tows have advanced about £2 a ton from the bottom, and are held for a further rise. *Jute Yarn* is easier. For, say, 8 lb. cop 1s. 10½d. was got; to-day 1s. 9¾d. is the best price obtainable. For 8 lb. warp 2s. was paid, now 1s. 11d. is all that can be realised if one must sell. Heavy yarns also are a shade easier to buy. Jute *Hessians* are in a peculiar position. For ordinary goods it is impossible to get buyers for the whole production. For goods of high quality and special widths there is an active demand, and prices are paid greatly in excess of the quoted list rates. *Linen* goods are dearer. Advanced price lists are issued by all the leading houses. The demand is excellent, all the looms being well engaged for some time. Dundee *Fancy* jute goods are still dull, as buyers do not take into account the immense rise in the price of jute. In specialties some of the best makers are indeed very busy, but this is quite exceptional. The demand for jute *Rope* and twines continues to extend, and makers are well engaged. The continued fall in the price of silver causes some anxiety. In some respects the fall favours Dundee, as cheap silver means cheap jute. But, upon the other hand, cheap silver means cheap Indian-made jute goods. The Calcutta mills ship to New York, and even to England, manufactures to pay debts here rather than buy gold. The result of a further fall in silver would of course greatly increase the danger of that Indian competition which at this moment tells so seriously. This is a subject in which all classes, employers and employed, are deeply interested; and it may, if the fall continues, quickly become a "burning" question.

HOSIERY AND LACE.

NOTTINGHAM.—Lace and hosiery yarns are only in dull request. The sales of curtain yarns are slightly below the average. Prices are not quotably altered, and there is no speculative demand to put them to any severe test. There is a steady demand for merino and wool yarns for hosiery. The sales of silks, though not extensive, are steadily on the increase. There is no change in the condition of the bobbin net trade; plain silk tulles are unaltered in value. Business in the fancy millinery lace departments remains somewhat languid.

LEICESTER.—The wool trade is quiet, purchasers being rather shy. Staplers, however, shew no disposition to yield to the demand of buyers as to prices, for the quiet season is now passing away. The large quantity of wool coming forward in London was calculated by some people to cause a heavy fall in prices. The yarn market generally has been rather more active for local requirements, and prices shew little if any change for standard qualities. Fancy hosiery manufacturers are fast completing their new samples, which are more numerous and varied than ever. In some departments early orders have already been placed. The plain hosiery trade is still quiet as a rule. Those firms which have made for the American market are finding little if any encouragement at present.

DRY GOODS.

MANCHESTER.—The enquiry or laces is still rather dull, only chiffons being in anything like brisk request. The curtain trade is quiet, many of the factories working on short time. This remark applies, amongst others, to Ayrshire, where the hours of labour are much less than was the case a few months ago. The enquiry for curtain yarns is also small, and this fact may be regarded as indicative of the poorness of the demand for finished goods. There is not much doing in carpets. Narrow widths have been for some time quiet, and as the shipping trade does not improve there is little prospect of a speedy change for the better. The silk trade is fairly brisk. Linens are slow, both in the coarse and fancy ends. Buyers consider prices of the latter too high, although there is no justification for such an opinion. Seeing that prices of raw material are so high, there is not much doing in jute goods. The condition of the market for raw material demoralises the trade. Steadiness in quotations would help the market considerably. The absorption of cheap Hessians on South American account is checked by the dearness of the raw material, and the same remark applies to other markets. With reference to silk, the demand for piece goods is not large, much of the enquiry being centred on fancies.

Joint Stock and Financial News.

NEW COMPANIES.

H. S. CROPPER AND CO., LTD., NOTTINGHAM.

Capital, £15,000 in £10 shares. Object, to acquire the undertaking of a manufacturer of lace-making and printing machinery, now carried on by H. S. Cropper, J. Cropper, and S. Thacker, at Minerva Works, Great Alfred-street, Nottingham, and to develop and extend the same. Registered without articles of association.

SEVILLES, LIMITED, ROYTON.

Capital, £5,000 in £5 shares. Object, to adopt and carry into effect an agreement made between T. Seville, K. Seville, and J. Seville of the one part and W. Taylor, on behalf of this company, of the other part, for the acquisition of the undertaking of cotton spinners and manufacturers now carried on by Thomas Seville and Sons, at the Spring Hill Mills, Royton, near Oldham, and generally to carry on and extend the same business. Subscribers:—

	Shares.
R. Evans, 27, Shaw-road, Royton	1
J. Taylor, Bent House, Shaw	1
J. Waterworth, Shaw-road, Royton	1
H. L. Hargraves, 101, Queen's-road, Oldham	1
C. McLaren, Acre House, Oldham	1
R. Cooper, Holly Bank, Royton	1
R. Leeming, 23, Park-street, Royton	1

The first directors are R. Cooper, R. Evans, H. L. Hargraves, C. McLaren, J. Taylor, J. Waterworth and T. Seville. Qualification, 20 shares. Remuneration, £175 per annum, divisible.

WELSH MANUFACTURING AND WOOL STAPLING COMPANY, LIMITED.

Capital, £30,000 in £1 shares. Object, to acquire the undertaking of Messrs. Dakin Brothers, now carried on at Llanidloes, Montgomeryshire, and Merthyr Tydfil, Glamorganshire, in accordance with an agreement made between E Dakin and Edward Dakin of the one part, and Sir P. Pryce-Jones, Kt., and J. Kitto, Esq., on behalf of the company, of the other part, and generally to carry on business as manufacturers, dyers, and finishers of flannels, serges, tweeds, and other woollen goods and textile fabrics. The subscribers are:—

	Shares.
P. Pryce-Jones, Kt., Newtown, North Wales	1
J. Kitto, J.P., Glandwr, Llanidloes	1
L. Carr, Cardiff	1
H. W. Lewis, Abercanaiel, Merthyr Tydfil	1
D. Macdonald, 9, Newcastle-street, Merthyr	1
E. Dakin, John-street, Merthyr	1
E. Dakin, High-street, Llanidloes	1

The first directors are the first four and the sixth of the above signatories, with the addition of J. David Davies, of Llanidloes. Qualification, £500. Remuneration, £200, divisible.

MOSLEY MILL COMPANY, LIMITED.

Registered by Hooper and Son, 69, Ludgate-hill, E.C., with a capital of £15,000 in £1 shares. Object, to acquire the undertaking of a manufacturer and printer of coloured goods, now carried on by F. D. Berry, at 37, Back George-street, Manchester, and to develop and extend the same in all its branches. With slight modifications, the regulations contained in Table A apply.

W. LOCKWOOD AND CO., LIMITED.

Registered by A. M. Bradley, 42, Lombard-street, E.C., with a capital of £5,500 in £10 shares. Object, to carry on in all its branches the business of woollen, worsted, serge, and textile manufacturers and merchants, and cord cutters in all their respective branches. Most of the regulations contained in Table A apply.

GREENHALGH AND SHAW, LIMITED, BOLTON.

Capital, £80,000, divided into 8,000 shares of £10 each. Object: Spinning, doubling, manufacturing, and otherwise dealing with cotton, etc.; with power to acquire the land, mill, premises, and plant of Messrs. Greenhalgh and Shaw, cotton spinners and doublers, Halliwell Mills, Bolton. Subscribers:—

	Shares.
*Thomas Wood Shaw, Halliwell Mills, Bolton	1
*Charles Henry Shaw, Halliwell Mills, Bolton	1
*William Grierson, Halliwell Mills, Bolton	1
Mary Shaw, Wellesley House, Bolton	1
Catherine Shaw, Sweetloves, Sharples	1
Thomas Midgley, Halliwell Mills, Bolton, cashier	1
John A. Reed, 40, King-street, Manchester, solicitor	1

Those marked * are Directors.

Patents.

SPECIFICATIONS PUBLISHED.

1891.

2,681 STELLING. Looms. 11d.
3,220 ROTHWELL, W., and others. Cutting knitting machine needle beds. 6d.
4,813 REVIS and MARRIOTT. Knitting machines. 4d.
4,924 JOHNSON. Open washing machines. 6d.
5,089 MUNNS (*Warner*). Making braided cordage. 11d.
5,499 LISTER and others. Looms. 8d.
6,033 GARE. Head band and lining for hats. 8d.
12,919 REDFORD and HARRISON. Rag engines. 6d.
21,949 VON PORTHEIM. Colouring matters. 6d.
22,263 KERN. Bleaching, etc., textiles. 6d.

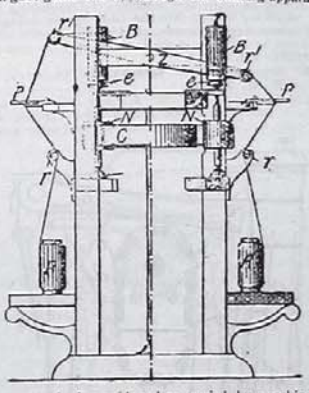
SECOND EDITIONS.

4,992 (1882) GLASER (*Braun and another*). Making fatty matter from wool fat. 6d.

ABSTRACTS OF SPECIFICATIONS.

12,783. August 14, 1890. **Spinning.** H. H. LAKE, 45, Southampton Buildings, Middlesex.—(*S. G. de Montaussan; 31, Rue de l'Hotel-de-Ville, Lyon, France.*)

Clearing silk threads.—The threads pass from delivery bobbins R over a glass guide rod *r*, through the clearing apparatus P,



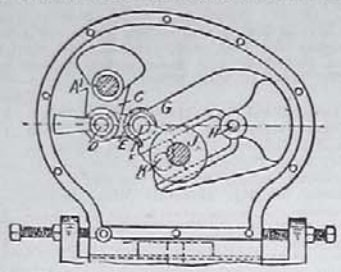
and over a second glass guide rod *r*1 carried by a rocking lever Z, which is operated by any suitable means. The oscillations of the lever Z distribute the threads on to vertical receiving bobbins B, which are mounted loosely on vertical spindles, and are driven by the friction between the ends of the bobbins and collars *c* on the spindles. This friction is only just sufficient to drive the bobbins, so that the latter will stop if the slightest additional resistance be offered to the threads, such as is offered by the arrival of knots, bunches, etc., at the clearing apparatus. The spindles are driven by an endless belt *c*, which takes over drums N on the spindles. 8½d.

12,805. August 15, 1890. **Gearing, belt, etc.** J. MCQUEEN and W. MOORES, Pollard-street, Manchester.

Belts for conical pulleys are formed by two or more parallel strips connected together at intervals by means of loose links or other attachments. The invention is said to be applicable in textile machinery such as scutching machines, slubbing and intermediate frames, etc. 8½d. *Drawings.*

12,815. August 15, 1890. **Spinning.** T. BARKER, 15, Henry-street, Bolton.

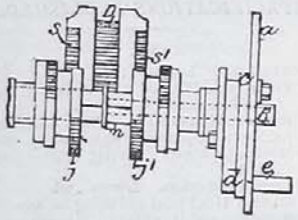
Carding-engines.—In order that the doffing comb may be given two distinct beats at each revolution of the crank shaft J,



the latter, by means of a sliding block, is caused to oscillate a pivoted fork G, which is connected by a link E to the crank C on the shaft A1 of the doffing comb. The centre F is deflected to each side of the line joining the centres D and H at each revolution of the crank pin K. By a modification, four or more beats may be given to the doffing comb at each revolution of the crank shaft. The bearings are preferably conical, and the whole is enclosed in a liquid-tight box in order that the apparatus may run partly immersed in oil. 6½d.

12,838. August 15, 1890. **Looms.** H. H. Lake, 45, Southampton Buildings Middlesex.—*(F. Lacey Adams; Massachusetts, U.S.A.)*

Change-box motions.—Two blocks *j*, *j*1, each consisting of two half circle segment gears placed on opposite sides and ends of a hub, are mounted to control, respectively, a crank plate *a* and an eccentric *d*. A plate *c* carries a stud *e* from which motion is imparted to the boxes, and which has a bowl at its other end running in the groove of the eccentric *d*. This bowl and a stud on the other end of the plate *c* slide in slots in the plate *a*. The latter is fast on a shaft R whilst the eccentric is fast on a sleeve



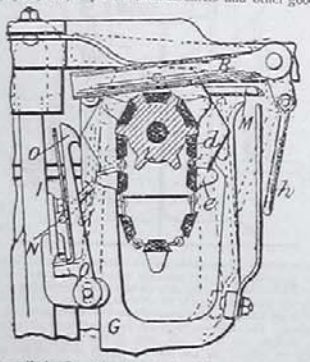
m thereon. The segment gears *j*, *j*1 are turned at times by segment gears *s*, *s*1 carried by a suitably turned wheel D, the gears *j*, *j*1 being shifted laterally, as required, by levers acted on by a pattern chain. Stop plates and spring eveners are provided for locking the parts when they have been turned. The box-lever consists of two parts connected by a spring pin-and-slot device which yields on obstruction, to prevent breakage. The first tooth of each gear, *j*, *j*1 is made longer than the others, and is re-inforced on its underside to strengthen it, the driving gears being recessed correspondingly. The teeth of the latter are arranged to yield if they strike the other teeth on the top. The cylinder motion is stopped when the weft fails by rod and lever connections between the driving dog and the weft-stop motion. The invention may be modified and adapted to a two, four, or eight box-motion. 1s. 2d.

12,839. August 15, 1890. **Warp lace.** S. G. Packer, 24, Regent-street, Nottingham.

Clear or decisive selvages are made upon veil and millinery nets produced on warp lace machines, by employing thicker threads, which are worked into the fabric by the ordinary steel bars. The over-lapping threads, attaching the breadths together, are cut away by scissors, or the breadths may be attached by draw threads. 4½d.

12,856. August 16, 1890. **Looms.** E. Keighley, Bank-house Iron Works, Burnley.

Change-box motions.—In order to lessen the number of cards employed in rotary box motions in weaving borders, stripes, checks, spots, etc., in pocket handkerchiefs and other goods, an



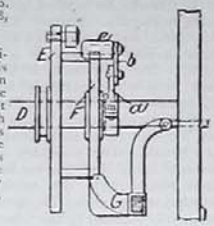
auxiliary cylinder L, with a lug chain *d*, is mounted preferably on the axle of the card cylinder. The latter is turned by a double hook G, which is pivoted on a rising and falling rod I, and is put into action on one or other side of the card cylinder (in order to repeat cards for the plain part of the weaving) by the action of a finger *h* of a lever K, the latter being controlled by pegs *e* on the lugs *d*. The cylinder L is driven at the required times by a hook O on the rod I, such hook being put into and out of gear by the loop N on a lever M, which is controlled by pegs carried by the cards. 8½d.

12,898. August 16, 1890. **Knitting.** T., J., and J. W. Kidder, Bell-street, Arkwright-street, Nottingham.

Warp machines. In traverse machines, the threads from the traversing bobbins are caused to pass under a tension roller or bar, which is capable of moving vertically in slots formed in arms on the standards of the carriage. This device is combined with the ordinary tension pulley, around which is wound a cord having a weight at each end. 8½d. *Drawings.*

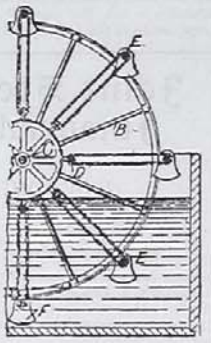
12,901. August 16, 1890. **Looms.** J. Cairns, 38, Firth-street, Huddersfield.

Checking shuttles.—An additional adjustable tappet *e* is mounted on a bracket *a*, *b*, on the tappet shaft D, or on the block F of the picking tappet E, the arrangement being such that, when the tappet E is shogged back to miss the shoe G, the tappet *e* encounters the latter, and causes the checker to advance slightly to check the incoming shuttle. 6½d.



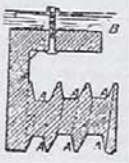
12,907. August 18, 1890. **Dyeing, etc.** E. and D. Sykes and E. Heffenstall, Turnbridge Iron-works, Huddersfield, T. Greenwood, Edward-street, and J. W. Whitteley, Sowerby New-road, Sowerby Bridge.

Relates to machines for scouring, dyeing, and drying hanks of yarn, slivers of fibre, and slubbings. Consists in causing the hanks to travel upon the rollers D, E, during the rotation of the supporting spider wheels B by fitting on the ends of the outer rollers E, eccentric weights F. In another form in which the rollers are carried by two discs near together, and with their free ends projecting therefrom, the eccentric weights are mounted at the middle of the rollers between the discs. 8½d.



12,922. August 18, 1890. **Spinning.** G. Walker, 201, Catherine-street, and J. A. Wood, 24, Chester-square, Ashton-under-Lyne.

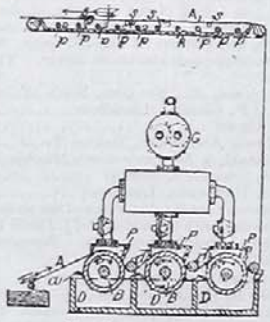
Mules.—The scroll band is secured to the carriage by wrapping round a helically grooved bracket A bolted to the carriage B. 6½d.



12,950. August 18, 1890. **Bleaching, etc.** H. Thies, Lasken, near Barmen-Rittershausen, and E. Herzig, Reutlingen, both in Germany.

Relates to a process for bleaching and scouring cotton, linen, and other textile or fibrous material of vegetable origin. Consists in precipitating caustic alkaline earths upon the fibre, deoxidating by heating or other suitable means, and subsequently saturating it with boiling caustic alkali; the coating of alkaline earth being employed to protect the fibre from detrimental action of strong caustic alkalis. The process in the case of calico, for example, consists in first leaving the fabric in a solution containing sulphuric and hydrochloric acids and a little hydrofluoric acid, for about four hours, steaming, and treating with ½ per cent. soda for about 12 hours. It is then washed with water containing magnesium chloride, or other alkaline earth, and placed in a scalding vessel, in which it is first steamed to expel air, and then subjected for five hours to the action of strong caustic soda. The latter is kept heated to 125° C. while being circulated through the boiler by pumps. The concentration of the liquid is kept up by evaporation, steam being allowed to escape from it by a pipe in a lower chamber. Subsequently the calico is washed, heated with chloride of lime, and scoured. 9½d. *Drawings.*

1,300. August 19, 1890. **Printing fabrics.** J. Shinn, Roxborough, Pennsylvania, U.S.A.



Relates to a machine for printing woven fabrics, such as carpets, rugs, horse-blankets, etc. The fabric A passes over engraved cylinders B, which run in colour troughs D, and are provided with doctors *a*. The colour is drawn from the cylinder and into the fabric by means of a partial vacuum which is created in box P, by an exhauster G. The fabric is prevented from rising by a series of ribs fitted within box P. After leaving the printing rollers, the fabric passes over a wire-cloth apron R, which runs over rollers *d* and *s*. Steam pipes *p* are fitted within a box placed beneath the apron, and are perforated when the fabric requires to be steamed. The machine may be used for printing thin fabrics, in which case the box P is not required. 6½d.

13,048. August 19, 1890. **Dyeing.** S. Pitt, Sutton, Surrey.—*A. Smith and Sons, Yonkers, New York, U.S.A.)*

Hank-dyeing machines.—Relates to a machine for dyeing hanks, in which the hanks are alternately shifted on the poles and trailed through the bath. The poles C are of **U**-shaped section, and are mounted on a removable frame D1 supported by a carriage D provided with rollers *d* for running on rails *h*. The hanks are shifted on the pole by means of two rods E, which are passed into the hollows of the poles C under the hanks by means of levers G operated from a cam E1 through a system of rods and levers. After insertion the rods E are raised by means of bars F mounted on a rock shaft G1 operated through arms *f* and levers F1, *f*1, and *f* from a cam F2. The pole carriage D is

FIG 1

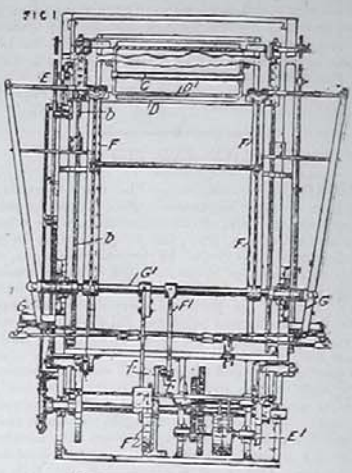
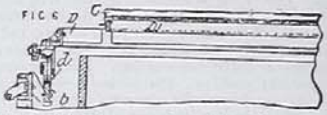


FIG 2



then moved along by means of a rack bar and a pawl operated from the cam K2 through half the distance between two poles, and the rods E are then withdrawn, dropping a fresh portion of the hanks into the dye liquid. The pole carriage D is next moved forward until the next pole C comes opposite the rods E, when the above operations are repeated on the next set of hanks. When the last set has been shifted, the poll carriage D is returned to the starting point by a weight which is automatically put into operation; and about the same time the driving band is moved by hand or automatically from the fast to the loose pulley and back again to stop and again start the machine. An index, provided to shew how many times this operation has been effected, is in connection with means for stopping the machine after the requisite number of operations. 1s.