

**TEN MILLION
SINGER'S
SEWING
MACHINES**

Have been made and sold. They are suitable alike for HOME USE AND FOR FACTORIES.

SIMPLE, SILENT, SPEEDY AND DURABLE,
And they meet all the latest requirements for every variety of Family Sewing.

**SINGER'S
VIBRATING SHUTTLE
MACHINES**

Are the Latest Production for Family Use. They have a High Arm, New Automatic Bobbin Winder, Latest and Best Self-Threading Shuttle, Simplest and most Convenient Stitch Adjustment,

And they combine in an eminent degree the great requirements for Household Use—Simplicity of Mechanism, Noiselessness, and Light Running.

**SINGER'S SEWING MACHINES
FOR FACTORY USE.**

THE SINGER COMPANY have recently made extensive arrangements at all their Branches in the Manufacturing Centres for showing their Various Styles of Machines for the Manufacture of

Clothing, Boots and Shoes, Corsets, Under-clothing, Collars and Cuffs, &c., &c.
Also their Various Styles of Benches and Power Fittings, to which the attention of Manufacturers is cordially invited.

FREE INSTRUCTION to all, whether for Domestic or Power-Driven Machines.

ANY CLASS OF MACHINE REPAIRED OR EXCHANGED.

THE SINGER MANUFACTURING CO.

Management for the United Kingdom:
39, Foster Lane, CHEAPSIDE, LONDON;
And 513 Branch Offices throughout Great Britain and Ireland.

MANUFACTURERS and all interested in **Drying Textile Materials or Fabrics, or in Removing Steam from Machines, Dust from Carding, or Foul Air from Gassing Rooms, etc.**, should apply to the Blackman Company, who have given exclusive attention for a number of years to **Mechanical Ventilation and Drying**, and have necessarily acquired a wide, varied, and special experience, which is placed at the service of their customers, being included in the price of the plant they supply.



**BLACKMAN
VENTILATING CO., LTD.**

MANCHESTER, 3 and 5, Todd Street. Telephone 860. Telegrams: "Drier, Manchester." Also at BRADFORD, GLASGOW and BRISTOL.

Publishers' Notices.

All remittances to be made payable to Marsden & Co., 23, Strutt Street, Manchester.
All subscriptions payable in advance.

Copies of *The Textile Mercury* may be obtained by order through any newsagent in the United Kingdom, and also from the following WHOLESALE AGENTS:—

MANCHESTER—Mr. John Heywood; Messrs. W. H. Smith and Son.
Aberdeen—Messrs. W. and W. Lindsay.
GLASGOW—Messrs. J. Menzies and Co.
EDINBURGH—Messrs. J. Menzies and Co.
LONDON—Mr. C. Vernon, 121, Newgate Street, E.C.

SUBSCRIBERS' COPIES.—*The Textile Mercury* will be forwarded to any part of the United Kingdom, from any date, post free, for 12s. 6d. per annum; 6s. 6d. for Six Months; 3s. 6d. for Three Months.

Abroad (thin paper edition): One year, 15 shillings; six months, seven shillings and sixpence; three months, four shillings.

ADVERTISING.—"Advertising is to Business what Steam is to Machinery—the Grand Propelling Power."—*Macaulay*.

Orders for alterations in current advertisements must reach the Manchester Office not later than Tuesday morning to receive attention the same week. Serial advertisements will be inserted with all practicable regularity, but absolute regularity cannot be guaranteed.

Scale of Charge for displayed advertisements will be forwarded on application to the publishers.

ADVERTISEMENTS of Auction Sales, Machinery for Sale or Wanted; Mills, Works, Rooms, or Power, to be Let or For Sale; Partnerships; Patents for Disposal; Situations Vacant or Wanted, Agencies, etc., etc., 12 Words, 6d. EVERY ADDITIONAL WORD, 3d. THREE INSERTIONS FOR THE PRICE OF TWO.

The Textile Mercury.

VOL. VI. No. 133. SATURDAY, MARCH 26th, 1892.

OFFICES: 23, STRUTT STREET, MANCHESTER:
MARSDEN & Co., Publishers.
LONDON OFFICE—121, NEWGATE STREET, E.C.

A HINT TO SYNDICATE PROMOTERS.

Our Boston correspondent, in a communication appearing in another column, gives some interesting facts concerning trusts in the United States, which may be considered the *habitat* of the promoter of such combinations. His remarks are sufficiently explicit without any further comment on our part, but attention may appropriately be drawn here to the latest development of the trust idea, as seen in the case of the National Cordage Combination. This body, not satisfied with having secured control of the cordage factories of the Union, has taken another step which marks a distinctly novel departure in connection with the art of monopolizing. In order to crush all hope of competition, it has secured control of all the cordage machinery establishments of the Republic, so that any one desirous of starting business in opposition to the Trust will find it difficult to obtain the plant. We commend the idea to the promoters of the Calico Printing Syndicate. If they can get calico printing machinists within the fold of the Union (provided one is ever established) they may succeed in having things all their own way for a time. A combination of milk dealers, owning all the cows in the country, need not surprise one after this. The Cordage Trust, it will be seen from the report elsewhere, succeeded in covering the raw material market one year—another bold coup, which brought an abundance of dollars into the treasury of the concern. It is not surprising to find that the American public is beginning to find the burden of supporting such rapacious organizations somewhat irksome, and we shall watch the progress of the anti-Trust movement in the Republic with some interest.

THE NOTTINGHAM TRADE: AN IMPORTANT SCHEME FOR ITS IMPROVEMENT.

Tired of the policy of waiting and hoping for a revival of the lace trade, it is likely that at last something will be done to bring about a better state of things in Nottingham's staple industry. It cannot be said that the movement has yet taken definite and practical shape, but a start has been made, and good results are hoped for. About the desirability for an improvement in the lace trade—a permanent improvement, not the ebb and flow which at present characterises it—there is perfect unanimity. All would like to attain the end: it is only in relation to the means to be adopted that there is likely to be any division of opinion. It is intended that the hosiery trade shall benefit from any advantages which may flow from the movement under notice, yet the *main* object in view is to improve the make of Nottingham lace and increase the demand. The first step may be comparatively easy; around the second, it will be readily seen, difficulties of no ordinary character centre. One thing is certain. To be successful any step in the direction indicated must meet with the support and goodwill of the *whole* trade, the large houses with the small. Arrangements have been made for the holding of a meeting in the Exchange Hall, Nottingham, probably next month, at which a number of proposals, several of them by no means new, and others of doubtful utility, for the improvement of the lace trade, will be submitted for consideration. A large number of manufacturers, as well as the Men's Society, have signified their approval of the initial step. Whether there will be the same

unanimity over the proposals remains to be seen. With the view of causing greater excellence in the production of lace it is suggested there should be a complete and permanent collection of lace manufactured during the last 50 years to be kept for educational purposes, as well as old models of lace machines; and that substantial prizes should be given for the best essay shewing the advantages to be derived from such a collection, and for specimens of lace superior to foreign production. Importance, too, is claimed for the introduction of shorter racks, and greater protection for manufacturers against piracy. To create a greater demand for lace it is thought that substantial prizes should be offered for the production of a new class of Lever's machines, calculated to command a good sale, and for a bonnet, a hat, and a cap so constructed as to be more attractive trimmed with Nottingham lace than with any other kind of trimming. It is also proposed that there should be an exhibition of lace in Nottingham, and that the Princess of Wales should be made aware of the advantages she could confer, as leader of English fashions, by wearing Nottingham lace for several seasons. All these proposals have to undergo criticism and probably amendment, but the promoters of the movement are hopeful that permanent good will result from the effort. Others are less optimistic, and see nothing very cheerful in the outlook.

DIRECT TRADING WITH THE ANTIPODES.

We observe that the *Otago Daily Times* and several other leading organs in New Zealand, in quoting some remarks which recently appeared in these columns on the above subject agree as to the value of our suggestion regarding the opening up of direct trade relations with this district, the most thickly populated in the country. Following close upon this discussion comes the announcement that direct consignments of New Zealand produce have already been forwarded as an experiment to Liverpool, and we understand that special efforts will be made to foster the trade thus opened up. In the opinion of those competent to know, very little "fostering" will be required. In dealing direct with consumers and producers here, the customers will not be touching a young market which still requires to grow. They will, on the other hand, be in contact with markets such as those of Liverpool and Manchester, which buy and sell in the first instance for a population of over 12,000,000, and it is time that the Australians commenced to work hand in hand with those who desire to establish more regular communication between Liverpool and the Southern Continent.

NEW ZEALAND INDUSTRIES: THE RESULTS OF PROTECTION.

An interesting return on the above subject has been compiled by the New Zealand Census Department. It shews that in 1878 there were 1,271 industrial establishments, employing an aggregate of 14,177 hands. In 1881 there were 1,643 establishments, employing 17,938 hands—an increase of 26½ per cent. In 1886 there were 2,268 establishments and 25,655 hands—an increase of 43 per cent. In 1891 there were 2,570 establishments and 29,880 hands, the increase being only 17½ per cent. The proportionate rates of increase per annum of the three periods are 8.84, 8.60, and 3.49 per cent. respectively. From this it would seem that an apparently steady rate of increase received a severe check with the introduction of the Protection tariff of 1888. The value of goods turned out was in 1885 £7,436,945, and in 1890 £9,422,000. The bulk of the increase is in the meat freezing, preserving, and boiling down industry, and in the flax trade, many new flax mills having been put up. These are unaffected by the tariff,

The woollen mills and boot factories employ 597 additional hands. There were 11 clothing factories, employing 1,269 hands and producing £237,781 worth of goods. There are now 18 factories and 1,290 hands, producing £16,579. What the *Otago Times* speaks of as a "specially fostered" industry—that of block and pump making—now employs one hand. It formerly employed three. There were formerly four chair and washboard factories, employing 11 hands. There is now only one factory employing three hands. A bagging factory, with 14 hands, is included amongst the new ventures. The *Trade Review*, which summarises the figures in the paper and analyses them at considerable length, contends that the result shews that very little real good has accrued from the imposition of a tariff complicated, vexatious and harassing in a high degree. It adds:—"From enquiries we have made, we are in a position to state that eight mercantile houses in Wellington connected with the import trade, employing among them 300 hands, pay in wages and salaries £44,450 a year, so that given an equal number of similar houses in the three other centres of the Colony, there would be 32 mercantile houses paying more in salaries and wages than the whole of these 59 classes and 363 establishments of manufacturers." This, of course, apart from a large number of houses with smaller establishments in these and other centres, and the whole range of retail houses who are importers, besides the large shipping and other interests connected with the import trade. And yet for the sake of endeavouring to foster a number of weakly hothouse industries the whole mercantile classes are to be treated as the enemies of the community, while the manufacturer is spoken of as if he were the only employer of labour. It points out that candle factories have added five hands in five years, and for this the whole population have to pay ¼d. per lb. extra for their candles. For the years 1889 and 1890 the extra duty paid on imported candles amounted to an average of £2,384 per annum. This is at a rate of £477 16s. 8d. each for those five hands, who, however, earn an average of only £102 7s. 3d. The conclusion drawn by our Free Trade contemporaries in the colony is that with its present small population New Zealand cannot yet hope to become a manufacturing country.

COTTON NOTES FROM NEW ORLEANS.

Our New Orleans consul has not always proved himself an infallible commercial guide, as previous comments of ours on his reports have shewn. In his report for 1891, dated the 26th January last, Mr. De Fonblanque remarks "that it is now estimated that the crop of 1891-2 will not fall much short of its immediate predecessor"—a forecast which implies a belief in a smaller output than that obtained during the season referred to. As recent events have shewn, the probabilities point to a much larger yield for the coming crop than that of last year. The New Orleans Cotton Exchange report for 1891, which is quoted by Mr. De Fonblanque, says that the cotton trade of the port has experienced one of the most prosperous seasons witnessed for years past; or, in the words of one of the leading committees, more cotton has been handed at the wharves and depôts, and in the warehouses, than ever before but once in the history of the trade. The contract business has increased 30 per cent., and the roll of the Exchange is now more numerous than for several years past. As a matter of fact, New Orleans has forged ahead into the front ranks of the progressive cities of the country, and, notwithstanding the financial stringency which during the earlier part of the past season so seriously affected many leading trade centres, it has controlled an increased

trade and enlarged the territory of its operations. Upwards of 1,500,000 bales of cotton have been sold by the members on the spot and "to arrive," not including considerable quantities controlled by them in the interior, which form a part of the transit; and the "future" department has covered operations amounting in all to 10,000,000 bales. The Supervision Committee of the Exchange says that as a rule cotton shipped from the port has been in much better order than for some years past, and fewer claims have been brought for damages. The remark does not, however, apply to "through cotton," which shews no improvement, a great deal of it having been wet and rusty, with ragged bagging. One cause of this may be the unwieldy size to which the country-made cotton bale has grown. It has been steadily growing for years, the explanation being very simple—that the railroads and steamboat companies generally carry a bale for the same price, whether it weighs 450 lb. or 600 lb., and the baling and packing costs no more. Commencing with 400 lb., the bale has steadily increased in weight, until now it has for some years past averaged over 500 lb. The increase has been steady up to the present time, but this year it has dropped behind the previous one, the bales averaging 511.36 lb., as against 513.26 lb., a loss of nearly 2 lb. Louisiana shews the heaviest decline, 7.25 lb. per bale; Alabama, 6 lb.; Georgia, 5.85 lb., and Tennessee, 5 lb., the other States making a slight increase. The trouble has been that the country gins at which the cotton is first baled and compressed cannot afford the expensive machinery necessary to bring the bales down to the proper size. More powerful presses will, it is expected, be established in time, many having, in fact, already been placed in the larger interior towns, although the majority of the cotton bales coming to the port are not in a condition ready for immediate shipment, having to undergo a second treatment. The *Atlanta Constitution* believes that a plan has finally been discovered that will obviate this difficulty, in the recent invention of a Texan, which enables the ginner to make a bale as small as that turned out by the powerful presses, and of greater density and at less expense than the plantation bale is made. This does away with the big compresses at one stroke. It is estimated that the invention will save directly to the planter from \$1 to \$2 50c. per bale, and to the South from \$7,000,000 to \$20,000,000 a year. The process, which is simple in principle, compresses the cotton as it is ginned, by passing it between rollers and making it into a web, which is laid layer upon layer in the bale. The air and elasticity are thus eliminated in large part before the pressure is exerted on the bulk. The process makes a bale of uniform size and of a density of 25 lb. to the cubic foot. It requires no more power than is used in making the plantation bale; hence the cost, as a matter of fact, is less.

EFFECT OF THE MCKINLEY TARIFF IN THE SOUTH.

The Consul goes on to give illustrations of the effect which the McKinley Tariff had upon the price of dry goods in the South. His statements are taken from one of the New Orleans dailies, and are substantially similar in character to the news conveyed in the cablegrams from New York which we laid before our readers some time ago. At the time the report was written one result recognisable was that Nottingham lace goods, and the lighter woollen fabrics of Bradford, were practically excluded from the market, in which they formerly had a ready and remunerative sale. Bobbinets, used extensively in the south for mosquito "bars," but uncalculated for in the north, had escaped nominal taxation, and came in at 35 per cent. as "cotton goods

not expressly named." There was, therefore, still a market for them. Prices of dry goods and household articles in September, 1891, as compared with prices for September, 1890, before the new Law was passed, are given as follows:

Street gloves, men's, September, 1890, were 1 dol. 50 c., in September, 1891, 1 dol. 75 c.; common lace curtains were advanced by the McKinley Tariff between those dates from 2 dol. per pair to 2 dol. 40 c., the cheaper sort from 37½ c. per pair to 45 c.; furniture, mohair, average quality, was advanced from 2 dol. 50 c. a yard to 3 dol. a yard; plushes from 2 dol. 50 c. per yard to 3 dol. 50 c. per yard; plush garments were advanced from 20 dol. to 25 dol.; flannel wrappers from 5 dol. to 5 dol. 50 c. per yard; French jersey waists from 10 dol. to 13 dol.; staple pearl buttons from 9 dol. per gross to 14 dol. per gross; pearl buttons from 75 c. per dozen to 1 dol. 17 c. per dozen; common broadcloth from 1 dol. 25 c. per yard to 1 dol. 50 c. per yard; black diagonals from 2 dol. 50 c. per yard to 3 dol. per yard; corduroy pants goods from 75 c. per yard to 1 dol. per yard; real woollens are placed by the Act beyond the means of many persons; ladies' and men's Cartwrights, cotton and wool, have been advanced from 2 dol. 25 c. to 2 dol. 75 c. each; cotton balbriggan from 1 dol. to 1 dol. 25 c.; men's domestic underwear have been advanced 1 dol. per dozen; corsets of the commonest kind have been advanced 30 per cent.; domestic blankets from 2 dol. 10 c. to 2 dol. 25 c.; mohair braid from 50 c. per yard to 67 c. per yard; men's Derby hats from 1 dol. 75 c. each to 2 dol. 12 c.; hammocks from 1 dol. 50 c. to 1 dol. 75 c.; woollen shirts from 2 dol. 12 c. to 2 dol. 37 c.; neckties of a certain grade from 50 c. to 75 c.; beaded edging from 62 c. per yard to 75 c. per yard; common cotton laces from 20 c. per yard to 25 c. per yard; curtain muslin from 20 c. per yard to 25 c. per yard; serge coat linings from 50 c. per yard to 55 c. per yard; Scotch chevots from 25 c. per yard to 37½ c. per yard.

We have been familiar with statements of this kind for some time past, but although the McKinley Tariff has undoubtedly increased prices of some kinds it has not by any means had the serious effect which some American journals proclaim. Most of the increases asked go into the pockets of the shopkeepers only. The manufacturer in many cases will not get a penny of the extra prices which rapacious retailers exact from an ignorant public, and to the extent indicated, therefore, protection, which has enough of its own sins to answer for, must be held blameless. We have simply given the above figures as curiosities. They do not in our opinion indicate by any means what are likely to be permanent quotations in the American market, any more than do the sensational figures telegraphed from Paris immediately after the passing of the new Tariff Bill. It is as well for all of us to clear our minds of cant in connection with such matters as these and look the truth squarely in the face. Unfortunately both Free Trade and Protectionist issues are clouded by the habit which most journals have, including some of the best-conducted dailies in our own country, of moulding facts to suit the arguments of their own side. If the public fails to see that an addition of 10 per cent. on the duties on linens does not justify shopkeepers in charging 13s. 6d. for an article previously obtainable at 7s. 6d., it is because some journals in the Parisian capital, opponents of the last Tariff Bill, wilfully deceive their readers. In the end the cause of Free Trade does not gain by such methods.

THE GERMAN EXPORT SAMPLE COMPANY.

We observe that some recently published remarks on the German Export Sample Company, of Stuttgart, have elicited a chorus of approval on the part of the British press of German business methods, followed by an exhortation to our manufacturers to go and do likewise. This being so, it may be as well to give an outline of the methods of the Sample Company. The business transactions of the concern during the year 1889-90 were of a satisfactory character. In April of the latter year there were 260 manufacturers connected with

the company, which had at that time 12 agents in different parts of the world. Each of these agents is furnished with samples of the goods manufactured by the various firms, these samples and patterns being suited as far as possible to the requirements of the country in which the agent resides. Merchants are thus enabled to see a sample of the article which they wish to order, and to give their orders and complete the purchase through the agent on the spot, somewhat in the same manner as they would do through commercial travellers, but with the advantage of a considerable decrease in the expenses, especially in cases where the agents reside in distant countries. This system has been particularly successful in Greece, and the report of the company states that its agencies there have been by far the most remunerative, and shew a steady annual increase in the number and value of sales. Orders, we are further informed by Lord Vaux in whose report to our Government the information is contained, had to be refused in several instances. The whole business done by the company at its 12 agencies increased 70 per cent. during the year. The methods of the syndicate above referred to are no doubt interesting, although the suggestion will no doubt force itself upon the reader that in this country buyers are not in the habit of calling upon manufacturers or their agents seeking to open up trade, but have to be called upon instead. Presumably the same remark applies to other countries, so that the Export Company, one would think, will not find its business to increase by leaps and bounds for long. And yet it will obviously be impossible for any of the 12 agents referred to to travel with the samples of 260 manufacturers' productions.

COMMERCIAL IMPERIAL FEDERATION.

We firmly entertain the belief that the future prosperity of this country and of our colonies and dependencies is to a large extent bound up in the question of a close federation, both political and commercial. All these countries are to a large extent capable of greatly increasing their supplies to us of the raw materials we require in the conduct of our manufactures, and in turn of taking from us a very great increase of manufactured goods. Potentially our colonies and dependencies are far and away our best customers, because so many other countries, especially if they have any competing industries of their own, have done everything possible to preclude us from trading with them, so far as supplying them with any of our productions goes. This they do oblivious of the fact that they have free entry to the markets of England, its colonies, and dependencies. Seeing, therefore, a tendency of modern sentiment in other countries setting so strongly in the direction of so-called protection, which has been so marked and strong for the past 25 years, and which we have not been able to check either by influence or example, does it not become our bounden duty to conform to these facts, and turn them to the best advantage? We think it does. We do not mean by this that we shall slavishly imitate either the United States or our Continental competitors by imposing prohibitive tariffs upon their productions. Rather would we devote all our commercial energy to the extension of our trade with the countries politically connected with us, and such others as do or will permit commercial intercourse on the same or equivalent terms. If necessary, we would give the countries entering into such agreement with us, wherever possible, such preferential treatment as would ensure them a preponderant advantage in our markets. It would be well in the

interests of our manufactures that, in all these various countries disposed to such favourable intercourse with us, we should originate a series of exhibitions of English manufactures, to be held in the leading commercial centres of each country, and that our manufacturers should make it a point of honour to contribute exhibits thereto. In return there ought to be an Indian and Colonial Exhibition in Manchester, as the most accessible and most important commercial centre in England. The exhibits for this should come from every land under the British flag, and thus shew the millions of people, who could easily gather here, what India and our Colonial empire can do for us. We need also to send such an exhibition, at least on a smaller scale, as that at Old Trafford, abroad, in order to bring before Indian and Colonial populations the productions of our manufacturing districts. This would be infinitely preferable to helping the Americans to do a lot of self-glorification and trumpet-blowing at Chicago, and then confiscating all the resultant advantages. On this question of commercial federation the President of the Association of Chambers of Commerce, Col. E. S. Hill, C.B., M.P., in his address to the representatives attending the annual meeting on the 8th inst., said:—

Viewing the injurious and sometimes exclusive nature of the tariffs which protection is setting up on the Continent and in America, it is but natural that our thoughts should turn more eagerly to our great colonies, extending as they do all over the globe, to seek, if it be possible, to tighten the bonds of our commercial intercourse, to the general advantage of the empire. Our colonies are now our best customers, and with their varied climates are capable of furnishing us with all the food and raw material we require. Were it possible to develop their resources in this direction, they would be able to buy more largely from us, and be glad to receive, in much larger numbers, that surplus population the future of which causes so much anxiety to thoughtful statesmen. I am sure we all look with a sympathetic eye to the Conference summoned by the London Chamber of Commerce, and will be prepared to give most attentive consideration to any feasible scheme which may be proposed with a view to the attainment of so great an object.

It is clear from this that the necessity of a move in a direction that will yield more satisfactory results than the one in which we have for a long time been travelling is becoming an impression of the leading commercial minds.

THE DIFFICULTIES OF MILL MANAGEMENT.

Our Oldham correspondent writes: "A case arising out of cleaning during meal hours came before the Oldham magistrates on Saturday, the defendants being the Prince of Wales Spinning Company. The facts, as detailed by Mr. Pearson, factory inspector, were simple enough, namely, that he visited the mill at 8-20 a.m., on March 5th, and found two young persons in the spinning room cleaning the machinery. Mr. Greenhalgh, the manager of the company, really admitted the facts, but pleaded difficulty in putting a stop to the practice. He contended that, as he had granted the employés the privilege of cleaning during mill hours, the spinners should have been summoned. The inspector suggested that if the spinners were responsible the company should summon them, but Mr. Greenhalgh replied that if he did that he should get at loggerheads with the spinners, while Mr. Lees (magistrate) added that he would have his place stopped. Asked how he would put down the practice, the factory inspector answered that it was not his place to manage mills or to advise how to put a stop to it, though he thought by some means it should be put down. The manager of the company went on to state that some months ago the spinners and cardroom hands compelled him to find them hot water every morning by a quarter-past seven, and every one of them got their breakfasts before the mill stopped. They compelled him to do this, or they would have struck work;

in fact, they sent their notices in. He was also compelled to let them out at 12 o'clock noon to get their dinners or anything else they wanted. The day after the company was previously convicted he sent for the carder, drew his attention to the notice making the carder responsible for any breach of the Act, and told him that if anyone was caught during meal hours in the carding room he would be held responsible. He allowed the carder to take his meals when he liked, so that no injustice should be done to him. He had done his utmost to put this thing down. Then the following colloquy took place:—

The Chairman (Mr. G. Wainwright): Could you not call the spinners together, and lay before them the consequences of this kind of thing?

Mr. Greenhalgh said he had a deputation of spinners to see him shortly before Christmas, and he then granted the whole mill the privilege of cleaning the machinery during mill hours.

The Chairman: Did they then promise you not to clean during meal hours?

Mr. Greenhalgh: Yes.

The Chairman: Well then, you will have to take some other steps.

Mr. Greenhalgh: As I have intimated, to summon the workpeople would make a grievance betwixt them and myself. I have decided, however, to discharge the next who is found guilty of this sort of thing.

However, notwithstanding the circumstances, the Bench found that a conviction for a similar offence had been recorded against the company within 12 months, and therefore they had no other alternative than to impose a fine of 20s. and costs in the two cases. The subject of preventing piecers from working in meal hours, arising out of the case, as all who have to do with the management of cotton mills will admit, is a difficult one. The very nature of their engagement is an impediment to their control. They are to all intents and purposes the servants of the spinners employed on the premises of the proprietor—indeed, the spinner really occupies the position of a sub-contractor, and practically undertakes to get the work done for the employer. The trades-union officials have even on occasions recently drawn attention to the subject, and pointed out to spinners their responsibility in the matter. It has even been hinted that the piecers are compelled by avaricious spinners to work in the meal hours in order to get more hanks per week turned out." This phase of the matter we are inclined to agree with, and until spinners are made wholly responsible there seems little hope of the obnoxious practices being stamped out.

NOT BI-NOR MONO-, BUT NON-METALLISM.

There are many sorts of money, but the impecunious may perhaps find some comfort in the reflection that there is, has been, and always will be a difficulty in getting enough of any kind. Whether it was tobacco, which was at one time current in the American colonies, or paste-board, which was circulated in the sixteenth century by the Dutch, it may be taken for granted that the man who defined "enough money" as a little more, hit upon a truth which is, as much as the immortal bard himself, "no of an age, but for all time." Money may have been burdensome, as were the rings of iron in Greece and of copper in Rome; or bulky, like the cowries which are still passed from hand to hand, or back to back, in Africa; but at any time and in any form people have always been glad to put up with it. There have been some astonishing equivalents for cash at different times, when countries have reached a point of development beyond barter. Leather, stamped with some device, was antiquated in the days of Seneca; the bark of the mulberry tree, according to Marco Polo, was made into paper and passed for a face value in China long before bank-notes had been thought upon by the outer barbarians of Europe. In the early days of

New England and Canada, beaver-skins were the common medium in commercial transactions, (and when trading off an old musket or a poor blanket on the Indians, a very good medium too), while moose-skins and deer-skins were, at other times, recognised units of value in trade, internal and otherwise. One verse of an old song made political capital out of this particular:

General Jackson! Who is he?
They say he lives in Tennessee;
But Tennessee is no great things,
She pays her debts in raccoon skins.

In Canada playing-cards were cut into pieces, signed by appointed officers, and issued for fixed amounts, but it was in the New England states, where the settlers were conversant with the convenience of specie, but could not get sufficient to go round, that the most remarkable alternatives were tried. At one time Rhode Island made milkpails a legal tender. Wool was much used as a standard in barter. Difficulties in collecting taxes, from which even those happy days were not free, and reluctance to meet levies, which are ironically called duties, led some States to accept wheat or maize, and others to take pork or cattle, in settlement of their demands. Connecticut would receive either, and one of several similar regulations, passed in 1696, authorises

A rate of twopence upon the pound in money to be levied upon all the rateable estate in this colony, this summe including the half-pennie rate granted by this Court in May last; and if any persons have not money, they have liberty to pay their rates in good and merchantable grain, beef, or pork at the prices following, viz., indian corn at two shillings per bushell; pease at three shillings per bushell; rice at two shillings sixpence per bushell; winter wheat at four shillings per bushell; pork at fiftie shillings per barrel, beef at thirtie shillings per barrel both well repackt, which shall answer their rate in lieu of money.

Massachusetts, by an especial act of 1739, accepted hemp at 4d. per lb. and flax at 6d. per lb. in payment of taxes. Leaving to the imagination some conception of what an application of this principle might mean in this year of grace, but still keeping in view the lack of money which made such provisions possible, there is the fact to be further noted, on the authority of Mr. John C. Branner, sometime attached to the Geological Survey of Brazil, that, until comparatively recent times, cotton thread and cotton cloth were used throughout that country in lieu of money. We may again leave some lively minds to realise what business would be like if accounts could be settled with pieces of calico, or what sort of a substitute spools of cotton would be for the minor coins of the realm. Drapers have already made use of such unquestionable small wares because of the inevitable fractions in their bills, but trade on the level of change-for-a-farthing would present obstacles. In Africa, according to Professor Drummond, calico represents silver, and prints

d, so that on a long journey into the interior it is necessary to begin with a couple of miles or so of calico, as a kind of textile railway ticket. But it is quite another thing to think of similar conditions being in force where manufactures were carried on to any extent, or where business had reached the point of shop-keeping. Yet Mr. Branner says that "in 1670 it was complained that unless the exportation of cotton cloth was prohibited, 'not a yard of cloth, or rather no money, would be found in Maranhão.' Balls of cotton thread were used as small change, and circulated as such in all the shops and in all kinds of financial transactions. The manufacturers of these balls do not appear to have been always scrupulously honest, for the legislature was finally obliged to take action to prevent the fraud of putting pieces of cloth, rags, and other such things in them. The trade in cotton between the neighbouring

captaincies became so large that the authorities of Maranhão, in order to keep all the money at home, prohibited the exportation of cotton from that place, and it was not until fifty years later (1756) that this law was repealed."

BURY TRADES-UNIONISTS.

Of late the trades-unionists of Bury have done their best to prove the truth of the remarks we have had frequent occasion to make in these columns in respect of their unwarranted aggressiveness, but a more unmitigated example of the insubordination of spirit and domineering arrogance of present day trades-unionists would be hard to find than that now being shewn by the Bury contingent. Simply because a number of the weavers employed at the Daisyfield Mill, Elton, have been called into the warehouse and shewn more than once faults in the pieces woven by them, and because the clothlooker and manager do not praise them for bad work and then beseech them to do their duty as it ought to be done, these weavers have solicited the interference of the secretary of the Weavers' Association. A Mr. Mills, who fills this office, accordingly proceeded to the mill, and there endeavoured to carry things with a high hand. When asked for proof of his charges he sought shelter behind ambiguous generalities: "The weavers say so," and presumably because the weavers say so—i.e., probably some half-dozen or so of them—it must be true. His reception and the result of the interview were perhaps not to that gentleman's palate, for he seems to have allowed his temper to escape from his control, and went away in a huff under the impression that he had been ordered off the premises. Nursing his wrongs did not apparently tend to diminish their magnitude in his eyes, for the next thing heard of was that the Weavers' Association was putting the weavers on notice to leave work at the end of seven days, unless "all the grievances complained of were removed or some official communication received from the firm," and accordingly the weavers were put on notice on Wednesday. That Mr. Mills, like other trades-unionists, is nothing if not inconsistent, goes without saying. He is secretary of the Weavers' Association, and therefore ought to know that the Masters' Association have also a secretary who has charge of disputes and such matters on behalf of the Employers' Federation. To object to the members of the Weavers' Association being seen personally by the employers in order to substantiate their complaints, and yet go to members of the Employers' Federation to deal personally with them, instead of transacting his business through the medium of the employers' secretary, certainly does not indicate much consistency of thought or action. And now Mr. Mills says he will not give way nor transact business in connection with this matter through any other medium than that of the firm itself first; and it seems to us that the argument is one that might very well be adopted by the firm, which should refuse to negotiate with or listen to any complaints from anyone other than those weavers who were affected by the action of the clothlooker. They themselves admit that there is not a mill in Bury where there is less fining or discharging of weavers, and it would seem that they calculate the proper proportion of visits which should be made to the warehouse by the weavers, and upon the amount of fines and the number of dismissals; and if those visits and dismissals do not correspond with what they conceive to be the average, then they proceed to "make matters hot," as they call it, within the vicinity of the firm. That being so, the only course the firm can adopt with any possibility of giving satisfaction to the Weavers' Association, seems to

be that of substituting the mild rule that has hitherto obtained in the mill for one of a sterner kind, and which must be accompanied by a relative proportion of fines and dismissals. Consistency is a virtue conspicuous by its absence from the composition of trades-unionists, for if they are fined and discharged, one is liable to get into their bad graces; while if one tries the milder course of simply pointing out their mistakes, and sending them back to their work with a few words of caution, and without imposing fines or dismissing them, one is still traversing the crooked path. Grumbling is out of place, because there cannot be anything to grumble at seeing that the fines are so infrequent; hence it follows that in order to qualify themselves for the privileges frequently spoken of as those of Englishmen's special prerogatives, a firm must impose fines also, and further season their course of treatment by a few judicious dismissals. We would remind those who are responsible for this breach of the peace, of what transpired at a certain mill at Pimhole not very long ago, and also of the fact that there are two sides to every question; and further that they had better take care that where they have sown with the wind they do not reap with the whirlwind.

CANADA AND RECIPROCITY WITH THE UNITED STATES.

Many of our readers must have noticed that at various times we have spoken very strongly upon the McKinley Tariff and the policy of the dominant party in the United States, and that we have not hesitated to denounce the whole affair as a gigantic conspiracy against the independent existence of Canada, and against its connection with this country. The McKinley Tariff was passed simply to isolate the Dominion from the trade of the States, and as the smart and unscrupulous politicians of that country intended, to make her position unendurable, and so impel her to seek admission into the Union. To their shame, be it said, this conspiracy has had its aiders and abettors in the so-called Liberal party of Canada. And judging from the extensive corruption that has been laid bare during the past few weeks amongst that party, we should not be surprised if further revelations were forthcoming, shewing that the leaders in the movement have had very liberal paymasters across the southern frontier. Only very recently Mr. Goldwin Smith stated that the late Sir John Macdonald had not scrupled to manufacture a plot charging the Liberal Party with intriguing to carry the country over by annexation to the United States. But the ex-Professor of History, who seems strongly desirous of being in at a bit of history-making, when advancing that statement was compelled to ignore the letters of one of the conspirators that had fallen into the hands of Sir John, who, in proof of his statement, had published them. In these letters strong views were expressed in favour of political union as compared with commercial union. The latter, however, was adopted, as it was thought if accomplished it could not fail to bring about the former in a very short time. But, notwithstanding the adoption of the reciprocity plank, and wholesale corruption of the constituencies by the Liberal party, they were defeated at the polls, and the recent investigations into the means by which they secured the number of seats they nominally won has revealed the fact that they nearly all resulted from corrupting the constituencies. Great numbers of seats were consequently vacated, and in very many instances these have since been filled by supporters of the Government. The doings of the disruptionists have been further enquired into, with such results

that if justice were meted out to them, many of their number would find their way into the interior of a gaol, and make a prolonged stay. As adjuncts to their most potent instrument, the tariff, the dominant party at Washington raised the question of the Behring Sea Seal Fishery, and also conjured up a dispute between Canada and Newfoundland with the same object in view, namely, to harass the Canadian Government. To enforce their views they are also threatening to discontinue the privilege granted under treaty of allowing Canadian commerce to pass over United States territory in bond into Canada, which is rendered necessary in the winter season by the closure of the Canadian rivers and ports by ice. In these conditions vessels have usually discharged the Canadian portion of their cargoes at Portland, Maine, whence it is sent forward by rail, materially helping to swell the receipts of the American railway company. The commercial union or reciprocity treaty, which the Liberal party were advocating, was judiciously left undefined. It was felt that to give the constituencies a clear view of it would not conduce to the party's chance of success, because it was well known to include discrimination against this country to such an extent as it was felt the constituencies would not swallow. That this was so is proved up to the hilt by the speech of the Hon. G. Foster, the Dominion Minister of Finance in the Canadian House of Commons, on Tuesday, when he introduced his Budget. Dealing with the trade negotiations at Washington, Mr. Foster said that

The Canadian Ministers had offered to negotiate on the basis of the Reciprocity Treaty of 1854 in regard to natural products, with such modifications and extensions as the changed conditions of the country had rendered necessary and desirable. Mr. Blaine replied that such a proposal did not contain the essential elements of reciprocity as far as the United States were concerned. He suggested to the Canadian Commissioners that they should negotiate on the basis of general reciprocity, including manufactures. The Canadian Ministers then asked what conditions Mr. Blaine proposed, and whether his suggestion embodied preferential treatment for United States products by Canada and discrimination against Great Britain. Mr. Blaine replied in the affirmative, and thereupon the Canadian Ministers stated that they could not entertain any proposal to discriminate against Great Britain, and pointed out that the finances of Canada would not permit loss of revenue on products imported from the United States. Mr. Blaine eventually admitted that the only method by which his proposal could be carried out was by Canada adopting a uniform tariff with the Republic.

This meant the imposition of a McKinley Tariff in Canada upon English and other goods. And this proposition the great economist and Professor of History had endorsed, no doubt with the approval of "Destiny," which has long used him as its favourite vehicle for the promulgation of its decrees to mankind. Really Destiny was incontinently cruel to Mr. Smith, as it paid no regard whatever to his Free Trade and other economical pronouncements. At the above point Mr. Foster stated that the Canadian Commissioners broke off the negotiations, declaring that it was useless to discuss the matter further. They were glad, however, that the interview had taken place and Canada now knew where she stood. Her best policy, he continued in his speech, was to cultivate the British markets, and it might be worth the while and the thoughtful attention of the Government to consider whether the time was not approaching, if it was not near at hand, when it would become the duty of Canada to hold out her hand to the country which had helped her by repaying favour with favour and interest with interest, and by giving the best treatment in her markets for the friendly treatment which she had received in the British markets. It is satisfactory to know that Mr. Foster's

announcement in favour of preferential trade with Great Britain was received with prolonged applause from the Government benches. With such a revelation of the objects for which the Government of the United States is working, and the devious policy it has adopted to gain its ends, is it not high time that the Home Government took the matter into their serious consideration, with a view to help on by every possible means the confederation of the Empire with all its colonies and dependencies? We would further ask manufacturers of all kinds in this country what benefit they can hope to attain from a country in which such a policy as the above has been openly avowed, by patronising their Exhibition at Chicago next year? It must be obvious that with such views prevailing there can be no intention of ever permitting them to reap a cent of profit if it can be prevented.

THE COMMON LAW OF CONSPIRACY.

We have several times of late had to point out that the trades-unionists throughout the kingdom, by their proceedings generally, and by their attacks upon individuals particularly, were traversing the principles of social liberty and transgressing the laws. In our issue of January 16th, in an article devoted to the subject, and in which the opinion of Lord Bramhall, Lord Justice Bowen, Sir Alexander Cockburn, Mr. Justice Smith, and Mr. Russell Gurney, were quoted, it was clearly shewn that such proceedings as the organized mobs of trades-unionists were guilty of constituted serious infractions of the laws, for which the persons committing them ought to be made responsible, and by heavy punishment be shewn the real enormity of their transgressions. Since then the subject has continued to be discussed, the professional politicians of a moribund Parliament having made it their own. On Tuesday these gentry had a high day in the House of Commons, which was used as a rostrum from which to address the trades-union gods in the constituencies, and they talked to their heart's content. The subject was the law of conspiracy, and we propose to offer a few words of comment upon the speeches delivered in the debate.

The subject was introduced to the House by Mr. Edmund Robertson, M.P. for Dundee, who proposed the House should affirm his resolution: "That the common law doctrine of conspiracy, by which persons are made punishable for combining to do acts which in themselves are not criminal, is unjust in its operation, and ought to be amended." Mr. Robertson is a lawyer who appears to have made politics a profession, and with the combined instinct of the lawyer and the politician devotes his attention to subjects that he probably believes will bring forth the most fruitful crop of votes. In proof of this we need only adduce his own statement made in his opening observations, that "this proposal had been considered in the recess by the Trades Union Congress at Newcastle, and had received the support of that body through its Parliamentary Committee." There need be no doubt, therefore, as to the origin of this motion. Mr. Robertson referred to a well-known legal text book by Roscoe, which he characterised as "dull," and in which the common law doctrine of conspiracy was laid down and explained. We should like to know what law books are not "dull" from a general reader's point of view! A much more important matter is, are they correct in their exposition of the law, and are the laws beneficial and accordant with the best principles of public liberty? Roscoe's conclusions after his expositions were that it might possibly be "a crime to combine to do almost anything which the judges regard as a

moral wrong, or politically or socially dangerous." This is a perfectly sound exposition, and exactly meets the requirements of political and social justice, notwithstanding the opposite contention of Mr. Robertson. It is the assertion of a sound legal principle, and one which lies at the very foundation of society, and its existence renders unnecessary ten thousand specific statute laws forbidding this, that, and the other, and leaving permissible everything not expressly forbidden by name. It is through our statute laws that the ingenuity of lawyers and even laymen can at any time drive "a coach and six horses." But they cannot do it through the common law of the country, which is based upon well-formulated principles. Trades-unionists, boycotters, and most lawless persons would be glad to see the common law of the country swept away because of its far-reaching influence and its difficulty of evasion. Mr. Robertson referred to a case that occurred in Glasgow last year, in which two trades-unionists were tried and appropriately punished for a conspiracy in attempting to deprive a dock labourer of the means of earning his living, and using threats that if he were retained in his employment they would withdraw from theirs. This Mr. Robertson stated was the same crime that Mr. Bompas endeavoured to punish at Plymouth, but was proved to be wrong in his law. The case tried before Mr. Bompas was not one in which the spirit of the decision was wrong, but one rather in which the letter of procedure was incorrect, because of the imperfections of the statute under which it was tried. Here again the common law proved its superiority. The grievance, if there was any in the case, was not that the two men in Glasgow were convicted, but that one man at Plymouth escaped; it was not a grievance of an individual but of society at a failure of justice, and therefore affords no argument for the amendment of the common law of conspiracy. To shew how society is protected by the general principles asserted in our common law we need only point out how the ingeniously devised schemes of boycotters and trades-unionists are caught in its meshes whilst they would swim clear through all statutes.

Mr. Burt, a representative trades-unionist, and one of the most intelligent and honourable men to be found in their ranks, seconded Mr. Robertson's resolution, and reviewed the course of legislation since the beginning of the century to the present time. Mr. Burt's words deserve quoting for their sound common sense and the spirit of justice they breathe:—

When the Act of 1875 left the House there was an attempt, perhaps not altogether satisfactory, to define intimidation as something that would justify justices of the peace in binding over the persons who threatened or intimidated to keep the peace. Most of the cases that had arisen might be classed under two heads. One class related to pressure put upon non-unionists, and the other related to the question of picketing. He had always advised very strongly that influence should be used in the direction of persuading rather than forcing workmen, directly or indirectly, to join combinations. (Hear, hear.) He thought trade-unions were sufficiently strong to be able to be just—(hear, hear)—and to rely upon the merits of combination to attract workmen into them. As regarded threats, most of them had been of the nature of workmen or perhaps secretaries of trade-unions intimating to employers that if a non-unionist was not dismissed the union workmen would cease to work. That was not a position which he himself would defend, but he did not think that the threat should be a criminal offence.

If the position Mr. Burt would not defend he was wrong, it is to be regretted he did not tell us how far it was wrong, whether he would constitute it a misdemeanour, and whether carrying the threat into effect should not be something more. But Mr. Burt knows as well as anybody in the country that the proceedings of trades-unionists very frequently, indeed commonly, go

far beyond this point in the direction of illegality and tyranny, and that not a very great deal of complaint would exist were they not to go beyond the point he indicates. Mr. Burt, however, shews how difficult it is when once liberty has been given to any extent to withdraw it again. He said:—

One thing needed was a clearer definition of what constitutes intimidation. There had been numerous cases tried, and the law as laid down by a full bench of judges now seemed to be that intimidation must be a threat which, if carried into effect, would be a criminal offence. Many cases arose also out of picketing. Workmen demanded the right of peaceful picket. At the present time some employers of labour were suggesting the abolition of picketing. It was too late in the day, however, to talk of the abolition or prohibition of picketing. (Cheers.) If 17 or 18 years ago the right of peaceful picket was allowed by the then House of Commons, now that workmen had got very much additional power, and that their trade unions were much more influential, whatever other solution of the difficulty might be possible or practicable, picketing itself, if peacefully conducted, and without violence, would have to be allowed by law.

This is a substantial refusal on the part of the mouthpiece of trades-unionists to give up one of the principal instruments of their tyranny, and out of which the most offences arise. Mr. Burt refuses to give this up on the ground that the trades-unionists are strong enough to compel Parliament to leave it in their hands, though he knows that it is an instrument that cannot be used in the manner he describes, namely, peacefully and without violence. Mr. Burt may safely be defied to adduce a single instance of a strike in which picketing has been resorted to that has not resulted in the use of threats, intimidation, or actual violence.

Our space precludes further notice of the important discussion this week, therefore we content ourselves with the statement that Mr. Robertson's resolution on the division was rejected by a majority of 46. The numbers voting were:—For, 180; against, 226.

Designing.

NEW DESIGNS.

NEW SHIRTING STRIPE.

No. 1: A new shirting pattern, 5 shaft satin, 20 dents per inch, 5 in a dent of 28's for warp; one thread is five-fold of 30's twist, two turns per inch, making a dentful; 72 picks per inch of 30's cotton for weft. Warp pattern: 30 light stone, 1 five-fold (3 blacks 2 whites); 30 light stone, 1 five-fold (3 blacks 2 whites); 30 light stone, 1 five-fold (3 blacks 2 whites); 30 light stone, 1 five-fold (3 blacks 2 whites); 30 light stone, 1 five-fold (3 blacks 2 whites); 30 light stone, 15 dark blue, 15 scarlet, 5 light rose, 15 dark blue, 5 cream, 15 havannah brown, 1 five-fold (3 whites, 2 reds), 15 dark blue, 1 five-fold (3 whites, 2 reds), 60 havannah, 5 scarlet, 10 dark blue, 5 scarlet, 60 havannah, 1 five-fold (3 whites, 2 reds), 15 dark blue, 1 five-fold (3 whites, 2 reds), 15 havannah, 5 cream, 15 dark blue, 5 light rose, 15 scarlet, 15 dark blue, and repeat from first "30 light stone." Half patterns at selvages; good beetle finish, with glossy face.

GINGHAM CHECKS.

Design 2: For gingham checks, 4 shafts, 48 end draft, 24 to the round, 32 dents per inch, 2 in a dent, 24's warp twist, 64 picks per inch of 24's weft. Warp pattern, 272 chocolate, 4 white, 12 lavender, 12 dark drab, 12 lavender, 12 dove, 8 lavender, 12 dove, 4 black, 4 white, 4 black, 12 dove, 8 lavender, 12 dove, 12 dark Capuchin, 4 black, 8 white, 4 black, 12 Capuchin, 12 dove, 8 lavender, 12 dove, 4 black, 4 white, 4 black, 12 dove, 8 lavender, 12 dove, 12 lavender, 12 dark drab, 12 lavender, 4 white; the repeat commences with the "272 chocolate." Weft checking pattern the same in every respect. Width when finished 50 inches: this extra width gives an advantage in cutting on account of the large patterns.

Another or second pattern as follows: 96 cardinal, 24 royal blue, 4 straw, 4 blue, 4 straw, 18 royal blue, 8 cardinal, 4 black, 4 cardinal, 4 white, 4 cardinal, 4 black, 8 cardinal, 18 royal blue, 4 straw, 4 royal blue, 4 straw, 24 royal blue, repeating from 96 cardinal. Weft pattern the same.

Third pattern: 60 dark cream, 4 pink, 4 white, 4 pink, 4 white, 4 pink, 4 white, 4 pink, 40 cream, 4 emerald, 4 white, 4 emerald, 4 white, 4 emerald, 4 white, 4 emerald, and repeat from "60 dark cream." Weft pattern the same.

Fourth pattern: 80 light shrimp, 30 light claret, 4 shrimp, 12 light claret, 6 shrimp, 8 light claret, 10 shrimp, 6 light claret, 12 shrimp, 4 light claret, 16 shrimp, 4 light claret, 12 shrimp, 6 light claret, 10 shrimp, 8 light claret, 6 shrimp, 12 light claret, 4 shrimp, 30 light claret, and repeat from "80 light shrimp." Weft pattern the same.

FANCY CLOTHS.

Designs 3 and 4 give warp and weft effect on fancy cloths. In the one case more warp is required than weft and in the other more weft than warp. We merely suggest the two designs, or rather ties, of an eight shaft, eight to the round, straight-over draft. They will be found useful for cotton vestings or strongly-made cotton goods.

COTTON TROUSERINGS.

Design 5 on the same number of shafts, straight-over draft, will also produce a very heavy cotton fabric for trouserings, etc. It is a matting, and might be made on two shafts, 4 in a heald; but we give this tie so that Nos. 3 and 4 may be made on the same number of shafts if a change is required.

Design 6 or tie is also a straight-over draft on 8 shafts; we cannot afford space to give particulars of all these ties, so give as briefly as possible details for No. 6, which is a good diagonal for heavy cottons, say 12's warp and weft, four in a dent, 16 dents per inch, 64 picks of 12's weft, wove all grey, then well bleached or dyed in fancy shades. Let this diagonal run to the right, and it will not only finish better, but the appearance will be more effective.

ZEPHYR STRIPES.

Plain woven zephyrs, in stripes fashionably known as the "Vega," were very popular a few years ago. They are now coming to the front again in new styles, with beautiful colourings for summer wear. They are extremely useful as wash goods, being well dyed in the hank before being woven; thus rendering the colours absolutely fast—the principal feature in these fabrics. For warp 40 dents per inch, two in a dent of 30's twist, 72 picks per inch of 30's weft. No. 1 Warp Pattern: 60 dark blue, 6 rose pink, 6 white, 24 rose-pink, 6 white, 6 rose-pink; weft one shuttle all white well bleached. No. 2: 80 dark heliotrope, 6 sky blue, 6 white, 24 light cinnamon-brown, 6 white, 6 sky blue, 80 dark heliotrope, 16 mid blue, 4 white, 12 mid blue; weft all bleached white. No. 3: 96 navy blue, 6 light new drab, 6 white, 30 light new drab, 6 white, 6 light new drab, 96 dark navy blue, 24 light new drab, 8 white, 24 light new drab; weft all light new drab. No. 4: 60 terra cotta, 8 white, 4 terra cotta, 8 white; weft all white. No. 5: 40 rose-pink, 4 green, 12 white, 4 green, 40 rose pink, 4 dark brown, 8 white, 4 dark brown, 8 white, 4 dark brown, 8 white, 4 dark brown, 8 white, 4 dark brown, 8 white, 4 dark brown, 8 white, 4 dark brown. Weft all white; soft, clear finish; 28 inches wide. All these patterns will be found desirable for present demands.

THE ANALYSIS OF PATTERN.—VII.

GAUZE FABRICS.

The analysis of gauze patterns in some respects is much easier than the analysis of ordinary cloths, since with an ordinary piece-glass it is usually quite an easy matter to follow each individual thread throughout the repeat. This, as we shall see directly, is not the most difficult part of the work to be done: it is the drawing out of the weaving particulars, the reduction of the pattern to the least possible number of shafts, that calls forth all the energies of even the experienced analyst.

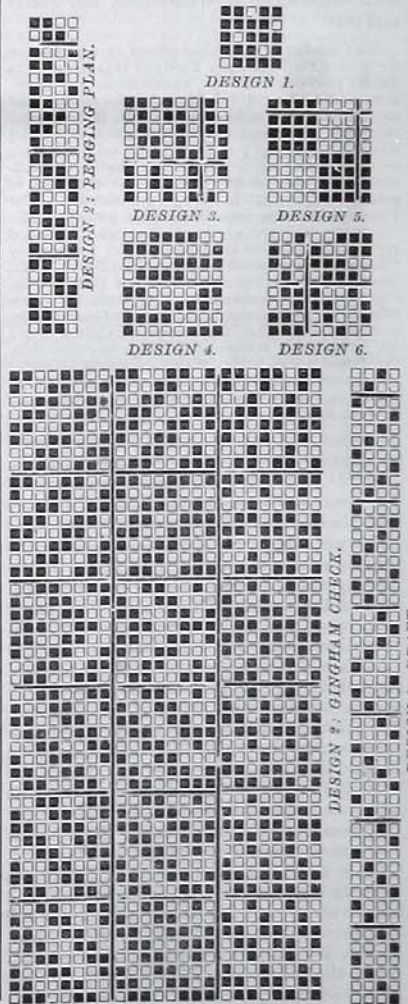
For convenience, the subject will be treated under the two heads Ordinary Gauze Fabrics, and Figured Gauze Fabrics.

ORDINARY GAUZE FABRICS.

This class includes all those patterns in which ordinary warp or weft figuring is absent, the beauty of the pattern thus depending on the

delicacy of the lace-like effect obtained by the varied orders of crossing. A simple example is given in Figure 1, by means of which the system of indicating gauze on point paper may be briefly described. The threads marked s s are termed the stationary threads, i.e., they are the threads round which the crossing thread works. These are the threads which the analyst first searches for, since the whole pattern literally revolves round these. The threads marked c c are termed the crossing threads, and the essential feature of gauze is that these threads may be lifted at either side of the stationary threads, on one side by the doup, on the other by the doup shaft, which consequently works in conjunction with the doup. It is evident then that to each pair of threads three shafts must be allotted, viz., doup, d; stationary, s; doup shaft, ds; as indicated in Design 22. The analyst then should first search for the stationary threads, and having found these, should indicate them in red pencil on point paper, taking care to leave a sufficient number of spaces for the doup and doup shaft. Having indicated these particulars as already shewn, each thread must now be followed throughout the repeat marking for rises. In following the crossing thread it is observed that it first rises on one side of the stationarys, and then on the other; thus, taking the doup to lift on the right-hand side, and the doup shaft on the left, the doup only in Fig. 1 will be raised for the first pick, the doup shaft only for the second, and so on, the stationary threads being bound to the weft by the crossing thread alone.

In effects similar to this, simple as they apparently are, there are difficulties often occurring, some of which may be illustrated by Figure 2, which is the gauze ground taken from a



figured fabric. Since each thread does an equal amount of bending, the first question which arises here is—which are the stationary threads? It is quite allowable in one sense for either *a* or *b* to be taken as such, but if *a* (which in reality represents two threads) be examined, it will be found to be bound to the weft only by the crossing threads *b*, therefore fulfilling the same conditions as indicated in *Figure 1*. Threads *a* must therefore be taken as the stationary. There is another point also which must not be overlooked, viz., that the effect is constructed as indicated, with the idea of making the stationary threads bend, and thus produce more of a lace-like effect, since the crossing threads, *b*, interweaving with the picks, obtain a firmness to which the stationary threads, in their comparatively loose state, must yield. *Design 23* is the point-paper design for *Figure 2*, which should be followed out, remembering that *a* and *b* each equal two threads, which will be split in the figure to form plain, etc., picks; *c, c, c* also equal two picks, each likewise split in the figure into two separate picks.

Having shown the method of transferring gauze effects on to design paper, attention must now be directed to the drafting, or "douping" as it is termed. *Figure 1a* indicates the draft for *Figure 1*, and *Design 22a* the pegging plan, in which it will be observed that the only difference from *Design 22* is the relative positions of doup and doup shaft, it being a custom in practice to place these together, while the threads they really represent, or rather the positions they represent, are separated by the stationary threads.

The draft and pegging plan for *Figure 2* are given in *Figure 2a* and *Design 23a*, where it will be noticed that should the figure be drafted as indicated, two doups will be required, while should threads *a* be taken as crossing threads,

there will be only one doup required. The fact that this is a ground effect for a figure accounts for this, which will serve as well as an introduction to that important matter, the reduction of the number of doups. The simplest case in which this is possible is illustrated in *Figure 2* and draft *Figure 2a*. It will at once be realized that this is simply what is termed a point draft, one doup under these conditions working the crossing thread on opposite sides of each group of stationary threads. The analyst then should carefully examine the pattern before him with the idea of grouping those threads together, which work alike or exactly opposite.

Another case in which figures can actually be woven with one doup only is illustrated in *Figure 4*. A careful examination of this effect will show that should the doup lift the crossing threads on the right-hand side of the stationary threads, it must be lifted every other pick to form the plain weave, while the shafts lifting on the left-hand side of the stationary threads form the gauze crossing; should the positions be reversed there will be no reduction in the doup shafts, but a considerable increase in the number of doups required.

The introduction of thick threads may sometimes prove confusing to the analyst, so he should remember that thick threads conform to the same laws as thin ones. For example, in *Figure 3*, if the thin threads edging the stripes be examined, it will be found that they work precisely the same as the thick threads, therefore an extra doup for them is not needed.

Another type of effect, to which attention should be briefly directed, is that illustrated in *Figure 5*. Here we have a combination of

gauze, twill, and plain stripes. It is evident that in this case ordinary shafts will be required for the twill and plain, while the full complement of doup, doup shafts, and stationary threads will be required for the gauze stripe. This means specially constructed healds, which of course implies extra expense, while at the same time it should be noted that once constructed the healds will only produce that particular width of stripe.

In analysing any type of gauze effect, there are two laws which may be of great service to the analyst. They are—firstly, in order to produce a clear precise crossing, the crossing threads must go over the pick preceding and succeeding such crossing; and secondly, in order to comply with the above law, all picks and threads must be grouped together in odd numbers when gauze and plain, etc., are combined.

To summarise our remarks as follows will conclude this section of our treatment. In analysing gauze fabrics proceed as follows:—(1) Indicate clearly on design paper the number of shafts required for the plain or twill, etc., stripes, should there be any, and for the gauze as already explained; (2) group all the threads and picks as they appear in the pattern, by means of brackets on the design paper; (3) obtain the full design by following each thread throughout the repeat by means of the piece-glass; (4) examine to see what reduction can be made in the number of doups, and make the draft and pegging plan accordingly.

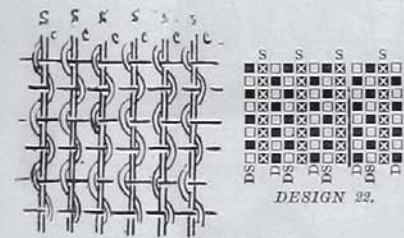


FIG. 1.



FIG. 1a.

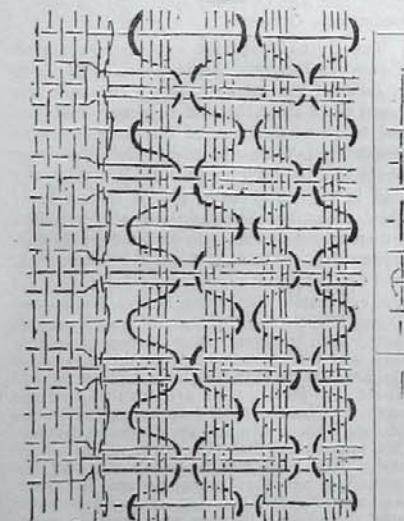
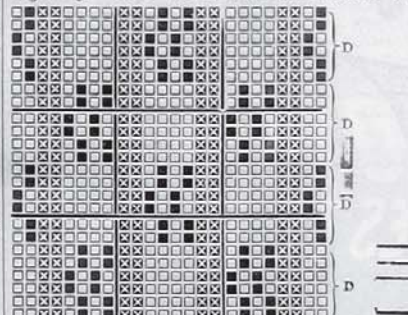
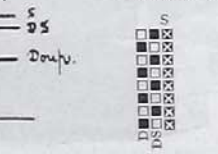


FIG. 3.



DESIGN 23.



DESIGN 23a.

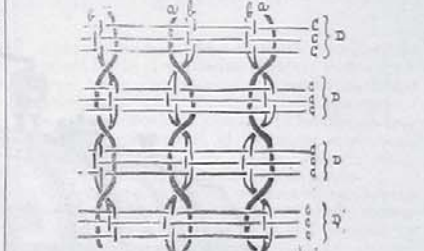


FIG. 2.

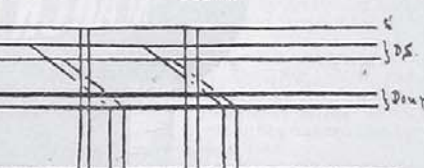


FIG. 2a.

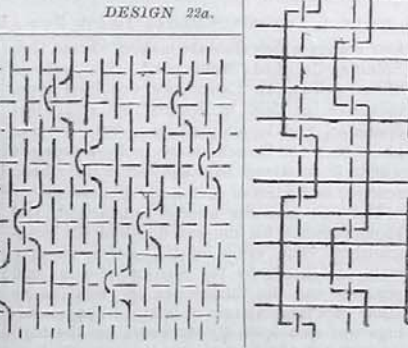
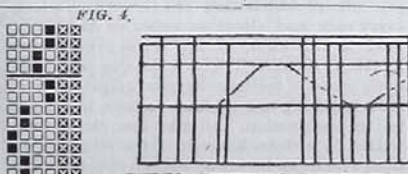


FIG. 4.



DESIGN 24a.

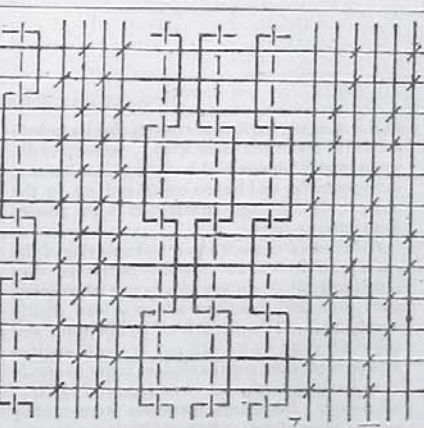


FIG. 5.

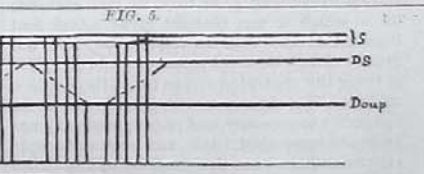


FIG. 5a.

Machinery and Appliances.

HIGH PRESSURE BOILERS FOR COTTON MILLS.

MAKERS: MESSRS. TETLOW BROS., HOLLINWOOD, OLDHAM.

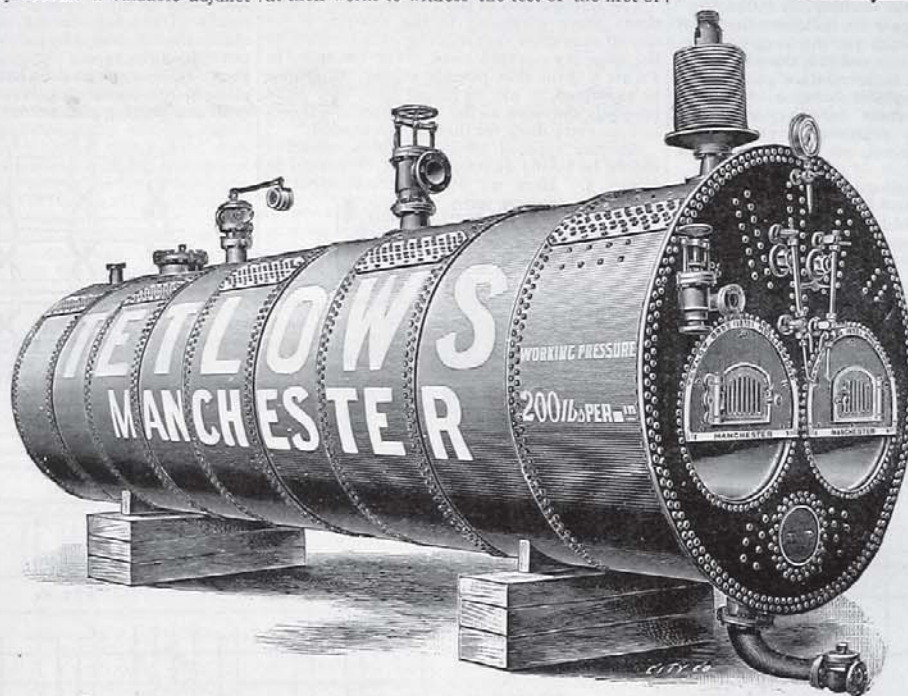
The celebrated Marquis of Worcester little dreamt, when he was experimenting in his laboratory upon the expansive capabilities of steam, of the mighty force he was on the point of revealing. But the fulness of time had not then come; a century more had to pass away, when Watt took up the task the ingenious nobleman had laid down, and enriched the world with the new motive power. The results that have sprung from this are known to everybody of average intelligence, and need not be dwelt on here. Suffice it to say that steam power immediately became a valuable adjunct

increased pressure of steam. As a consequence it is now becoming very general for steam users to replace what have up to recently been considered high pressure boilers, working at 70 to 100 lb. per square inch, and to substitute them by new ones adapted for pressures of 160 lb. to 200 lb. per square inch, as it has been found that by substituting these boilers and altering the engines to triple or quadruple expansion, a very considerable saving in fuel is effected. Boiler makers consequently have endeavoured to comply with this requirement, and it is gratifying to see that success has attended their efforts.

We have pleasure in drawing the attention of our readers to the accompanying illustration of one of these new high pressure boilers. Messrs. Tetlow Brothers, of Hollinwood, Oldham, who are the makers, are regarded as being the pioneers in this new departure, and on a recent Saturday, a number of gentlemen connected with the cotton industry assembled at their works to witness the test of the first of

the construction of boilers for carrying such a high pressure.

This firm also made the boilers of 160 lb. pressure for the West End Mills Co., Ltd., Oldham, the first firm in the Oldham district to adopt the triple expansion principle in their steam engines. The directors of the Oak Spinning Co., Ltd., are, we understand, intending to have their engines converted in like manner. Since 1883, when 100 lb. pressure per square inch was the ruling test, Messrs Tetlow have kept pace with the march of progress, making new boilers in turn for pressures of 110 lb., 150 lb., 160 lb., and 180 lb., and have now reached 200 lb. They have turned out a large number of boilers to carry 160 lb. pressure, and have now orders on hand for several of a similar character. Although this firm was only established so recently as 1879 it has gained for itself a reputation which reflects great praise on the foresight and judgment of those in authority, and the high character of the workmanship of their productions.



HIGH-PRESSURE BOILER, 200 LB. TO ONE-INCH.—MESSRS. TETLOW BROS., HOLLINWOOD, OLDHAM.

to the new mechanical industries that came into existence about the same time. Subsequently, when improvements had been made, it became indispensable, and has so continued up to the present day, though threatened with rivalry from various sides.

Boilers and engines from the beginning of the century until 1850 or 1860 did not make very much more than a quiet, steady sort of progress. But after that time the advance was greatly accelerated. The increase of competition and the diminution of profits led to both engines and boilers being overhauled, in order to obtain increased economy of working and greater efficiency. In boilers, pressures were rapidly run up from about 40 lb. to 70 lb. and even 100 lb., at which it was thought great things had been achieved. And so indeed they had, but greater things were yet in store. The principle of using the generated steam twice, three times, and even four times over has been found to be conducive to economy, and consequently engines known as compound, triple, and even quadruple expansion have been designed, built, and found highly satisfactory. These of course required an

four boilers which they are making for the Oak Spinning Co., Ltd., Hollinwood. The boiler is of the well-known Lancashire two-flued type, measures 30 feet in length by eight feet diameter, and is adapted for a daily working pressure of 200 lb. per square inch—a pressure which it is stated has not previously been reached in boilers of such large dimensions.

The test gave the utmost satisfaction, and spoke volumes for the excellence of the workmanship. The whole of the plates, we may state, are made by the Siemens-Martin acid process, and the thicknesses are such as to allow of a large margin of safety. The mountings are also specially designed for the high pressure at which they are to work. In fact, every care and attention seems to have been paid to the whole of the work, even to the minutest detail. The workpeople appeared quite proud of their prodigy, its weight being 33 tons, requiring two traction engines to draw it to its destination. All the flue plates were welded by a steam hammer of special construction, which can be run at a speed of 400 strokes per minute—a process absolutely necessary in

THE GUJERAT SPINNING AND MANUFACTURING COMPANY, LIMITED, AHMEDABAD.—The *Times of India* of the 1st inst. says: This mill was burnt down about the end of January last, but the board of directors of the company have decided to take time by the forelock and start again with the least possible delay. With this end in view they have placed the whole of their order, consisting of 25,000 ring spindles, with preparatory frames, in the hands of the well-known firm of Messrs. Sorabjee, Shapoorjee, and Co., who will supply the machinery from the celebrated machinists, Messrs. Brooks and Doxey (Mr. Samuel Brooks), whom they represent. The weaving shed belonging to this company totally escaped from the ravages of the fire, but the directors have decided to add about 350 looms, with preparation, and the same has been arranged to be supplied from Messrs. Butterworth and Dickinson, of Burnley. We understand that the whole of the above order has been telegraphed home, and the managing agent of the company, Mr. Munsookbhai Bhugobhai, has arranged so as to start the whole of the new machinery in working order by the middle of May next."

Bleaching, Dyeing, Printing, etc.

DYEING ON LOOSE COTTON.

In connection with dyeing loose cotton, mention of the method of dyeing with some new dye-stuffs lately put on the market which, as it would appear, will in this special branch of dyeing acquire great importance, is worth detailing. These are the Diazotized Diamine dye-stuffs, which are partly employed for black, and partly for catechu brown and deep indigo shades. The dyeing, diazotizing, and developing is done upon apparatuses, if such are on hand, in which case the cotton is, after dyeing, immediately subjected to the following treatment, without leaving the apparatus, as no damage to the apparatus is thereby to be apprehended; or the dyeing may be done as usual, in open vessels, in which case the diazotization and developing is effected in another vessel.

METHOD OF OPERATING.

1. *Dyeing*.—Dye for $\frac{1}{2}$ to 1 hour at the boil, with an addition of 5% soda, and 15% Glauber's salt, according to the desired depth, with 2—5% of dye-stuffs. Calcareous water is particularly preferable when copper vessels are used. The dye-bath is continued, and for the following lots half only of the first-employed quantities of soda and Glauber's salt are added to it. The quantity of dye-stuff to be added is reduced according to the quantity left in the dye-bath: if, for instance, at first 5% of dye-stuff has been employed, 4% will be sufficient for the later dyeing operations.

2. *Diazotization*.—The bottomed "grounded" cotton is rinsed, and then for 15 minutes raked in an acidulated cold bath of nitrite of soda. This bath is prepared as follows: Prepare first (a) set solution of nitrite of soda by carefully dissolving 1 lb. nitrite per $\frac{1}{2}$ gallon water; (b) a dilute solution of hydrochloric acid, by diluting each 1 lb. commercial hydrochloric acid of about 20° Be. to $\frac{1}{2}$ gallon; for every 10 lb. cotton 1 pint nitrite solution (a), and then $1\frac{1}{2}$ pint dilute hydrochloric acid (b), are added to the quantity of cold water required for the manipulation of the cotton. These operations are to be carried out in wooden vessels. For every subsequent diazotization $\frac{1}{2}$ of the quantity of the liquids a and b is sufficient to be added to the same bath. The diazotized material is then rinsed in a little acidulated water. As any partial drying must absolutely be prevented, the developing bath must be entered with the least possible delay.

3. *Developing*.—According to the bottoming and selection of the various developers, different colours are obtained. The following developing processes have thus far given the best results for loose cotton.

Blue.

Bottom with diamine black RO, or diamine blue-black E, and develop with beta-naphthol for very deep, and with naphthylamine ether and blue developer AN for lighter and brighter shades.

(a) *Beta-naphthol*.—Wet $1\frac{1}{2}$ lb. beta-naphthol with $1\frac{1}{2}$ lb. soda lye, 70° Tw., and dilute with 1 gallon hot water. Heat until complete solution is effected, and then dilute with cold water to 2 gallons. A fresh bath is prepared by adding for each 100 gallon cold water 2 gallon solution; superadd for each 10 lb. cotton 1 pint naphthol solution. The cotton is manipulated in this cold bath until no more change of colour is perceptible, which is already the case after a few turns. The material is then extracted or wrung, washed, and finished. When the bottom has been dyed with diamine black B, or diamine blue-black E, it is advisable to soap hot before finishing.

(b) *Naphthylamine ether*.—Prepare the bath for the first lot with 1 lb. of the commercial paste dissolved in 1 gallon boiling water for 100 lb. of the bath; for every 10 lb. cotton add in addition the solution of $\frac{1}{2}$ lb. naphthylamine ether. In this case also strong soaping is recommendable for the full development of the colour.

(c) *Blue developer, AN*.— $2\frac{1}{2}$ lb. blue-developer are mixed with 2 gallons cold water, allowed to stand until the frothing has ceased, and then heated to ebullition. Of this solution are added from the start 1 gallon for each 100 gallons cold water, and then 1 quart more for each 10 lb. cotton.

Black.

For bottoming, diamine black R or B is used, and phenylenediamine as developer. Phenylenediamine is furnished to the trade either in solution or in a solid form, together with directions how to prepare a solution of it of the same concentration. The solution is made of such a strength that, for preparing the bath there are taken 2 gallons per 100 gallons of the bath, and, in addition, 1 quart for each 10 lb. cotton; further for every 100 lb. cotton 2 lb. soda are added.

Brown.

After bottoming with diamine brown V, and cotton brown A and N, the colour is developed in phenylenediamine the same as stated for black. Besides, lighter shades of brown may be developed in chrysoidine, by operating as follows:—For each 10 gallons, a solution of $\frac{1}{2}$ oz. chrysoidine AG in hot water is added, and further, for the first as well as every following operation, $1\frac{1}{2}$ oz. chrysoidine for every 10 lb. cotton. By the addition of 2 oz. floated chalk for each 10 lb. cotton the bath is continuously kept neutral. Careful washing, preferably hot, is necessary. Increased security that the browns thus produced do not bleed into the whites is obtained when the dyed goods after developing are lightly rinsed and once more passed upon the diazotizing baths, in which they are manipulated for about 15 minutes and then washed. By mixing diamine brown and cotton brown in the dye-bath all shades of brown can be produced with qualities never yet attained. The various processes are, therefore, as follows:—

Navy Blue.—(1st) Dyeing with 4—5% diamine black Bo. or Ro. (2nd) Diazotizing. (3rd) Developing in naphthylamine ether or blue developer A.N.

Light Navy Blue.—(1st), Dyeing with $2\frac{1}{2}$ —4% diamine black Bo. or Ro.; (2nd) Diazotizing; (3rd) Developing in naphthylamine ether or blue-developer A.N.

Black.—(1st) Dyeing with 4—5% diamine black Bo. or Ro.; (2nd) Diazotizing; (3rd) Developing in phenylenediamine.

Blue Black.—(1st) Dyeing with 4—5% diamine black Bo. or Ro.; (2nd) Diazotizing; (3rd) Developing in naphthol.

Brown.—(1st) Dyeing with 5—6% cotton brown N or A.; (2nd) Diazotizing; (3rd) Developing in phenylenediamine.

Current Brown.—(1st) Dyeing with 3—3 $\frac{1}{2}$ % diamine brown V.; (2nd) Diazotizing; (3rd) Developing in phenylenediamine.

Dark Brown.—(1st) Dyeing with 4% cotton brown N, 1 diamine brown V., diamine black Bo.; (2nd) Diazotizing; (3rd) Developing in phenylenediamine.

CHROME BLACK ON WOOL.

To obtain a good even chrome black on wool, so that the staple shall remain nice and soft, it is necessary to add tartar, besides sulphuric acid, to the mordanting bath. Some dyers try to economise, and either omit the tartar altogether or else replace it by sulphuric acid or tartar substitute. The latter has nothing in common with tartar; it is simply bisulphate of soda, and in dyeing it acts in a manner similar to sulphuric acid. The action of the tartar in combination with bichromate of potash must be ascribed to its acid character, as it thereby liberates chromic acid. Its reducing action, however, is a chief requirement for chrome black, and, therefore, if a soft black on wool is desired, tartar is indispensable in the mordanting bath.

The rinsing after the chrome bath is also a chief requisite for obtaining an even colour. As is well known, the chrome bath contains free chromic acid, which precipitates upon the fibre as chromic oxide, even when cold. By taking the material out of the mordanting bath and permitting it to lie unrinsed for any length of time, the adhering chrome bath will be drawn downwards, and a larger quantity of chromic acid will deposit below than on top;

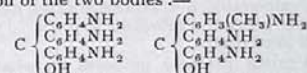
consequently it mordants the lower portion more strongly than the upper, the effect of which is that the former will absorb more dye-stuff—in other words, become darker in dyeing. This, of course, makes the material uneven in colour. When wool mordanted with chromic acid is exposed to light it will be affected so that it will take the colour unevenly. These several occurrences are best avoided, therefore, by rinsing the material at once after withdrawing it from the mordanting bath and covering it well, if, for some reason or other it cannot at once enter the dye-vat. A soft and equal chrome black on loose wool will always be obtained by adhering to the following method: Wash the wool thoroughly, rinse well, and whizz; 220 lb. material is mordanted boiling for $1\frac{1}{2}$ hours in a bath of 4 lb. 6 $\frac{1}{2}$ oz. tartar, 3 lb. 15 oz. chromate of potash, 17 oz. sulphate of copper, and 5 lb. 8 oz. sulphuric acid. Throw out, pass through lukewarm water, and rinse. Prepare a fresh bath with the decoction of 44 lb. logwood and 7 oz. sulphuric acid. Let it boil up, chill off, enter with the material, and boil slowly from 30 to 45 minutes. Take out and rinse. If the shade is to be deeper—that is, if a coal black is desired in place of a blue black—add a little fustic or quercitron bark to the dye-bath. By working according to above formula the wool remains perfectly soft, and a very even colour is obtained.

ROSANILINE.

Rosaniline is a body of some considerable interest to the dyer, calico printer, and colour maker, being the base of the well-known and valuable dye-stuff magenta, which was one of the earliest coal-tar colours to be discovered, and still remains one of the most important. From rosaniline other bases, yielding blue, violet, and green dyes, can also be made.

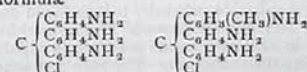
Rosaniline and the other bases allied thereto may be regarded as derivatives of a body known as triphenyl methane (C_6H_5)₃CH, which, by oxidation, can be converted into an alcohol body, triphenyl methyl alcohol, or triphenyl carbinol (C_6H_5)₃COH; or by treatment with nitric acid it is converted into trinitrotriphenyl methane ($C_6H_4NO_2$)₃CH. This can be by successive stages converted first into trinitrotriphenyl methyl alcohol ($C_6H_4NO_2$)₃COH, and into pararosaniline or triamido triphenyl carbinol ($C_6H_4NH_2$)₃COH. Rosaniline is the homologue of this, and is methyl-pararosaniline or triamido-diphenyl-tolyl-carbinol.

The following formulae represent the constitution of the two bodies:—



Pararosaniline. Rosaniline.

Both these compounds are very well-defined bases, combining with acids to form salts, water being eliminated. The hydrochlorides have the formulae



Pararosaniline hydrochloride. Rosaniline hydrochloride.

Both bases are colourless, but their salts have a strong red colour. The acetate or hydrochloride forms the commercial dyestuff magenta. These red dye-stuffs are mon-acid salts, that is, combinations of the base with one equivalent of acid. Diacid and triacid salts are known. The latter has a brownish yellow colour, either in solid or in solution; they are not stable, and addition of much water causes them to be transformed into the monacid salts. The latter are very stable bodies.

By reducing agents the bases lose the oxygen they contain, and form new bases, whose salts are colourless. This reaction is typical of nearly all colour bases, and these new bases are termed leuco bases; thus rosaniline yields leucaniline ($C_6H_5CH_2NH_2$)($C_6H_4NH_2$)₂CH, and pararosaniline the leuco base paraleucaniline ($C_6H_4NH_2$)₃CH.

By heating any salt of rosaniline with aniline, one, two, or three atoms of hydrogen in the

original base can be replaced by the radicle phenyl C_6H_5 , forming mono-, di-, or tri-phenyl rosaniline. At the same time a change of colour takes place, the tint becoming more blue with each successive addition of phenyl. Thus the salts of monophenylrosaniline are reddish violet, those of diphenylrosaniline are bluish violet, while those of the triphenyl derivative are blue, and form the ordinary aniline blues. Pararosaniline yields similar derivatives, which are blue dyestuffs of some importance.

In a similar manner the atoms of hydrogen may be replaced by the radicle ethyl: there are thus produced the Hoffmann violets, the RRR, reddest shade, being the monoethyl rosaniline; and the BBB, bluest shade, being the triethyl derivative. The methyl violets are the methyl derivatives of rosaniline.

The bases of the malachite and brilliant greens are also derivatives of rosaniline, from which they differ in only having two amido groups instead of three, as in rosaniline.

By treatment with sulphuric acid under certain conditions, rosaniline and its derivatives undergo sulphonation and form valuable dyestuffs, capable of dyeing wool and silk from acid baths. In this way are formed acid magenta, acid green, acid violet, alkali blue, acid blue, etc.

Acid magenta is the sodium salt of rosaniline trisulphonic acid,

$CC_6H_2(CH_3)SO_3NaNH_2(C_6H_2SO_3NaNH_2)_2OH$. Alkali blue is the sodium salt of triphenyl rosaniline monosulphonic acid,

$C_6H_5(CH_3)C_6H_4NHNH_2SO_3Na.C_6H_4NHCH_3.C_6H_4NHCH_3.H_2NC_6H_5$.

The soluble blues are salts of the di- and trisulphonic acids.

DECOCTIONS of Brazil wood, and other red woods, give improved results in dyeing when they have been previously kept for a considerable time in a cool place, as compared with the freshly-made extract. This has been long known in practice, and may perhaps be scientifically explained by supposing that the brasilin they contain undergoes oxidation into the more intensely coloured brasilin.

To obtain a substitute for gum arabic, a writer in *Dingler's Journal* prescribes the following procedure: Boil one part of linseed with eight parts of sulphuric acid, mixed with eight parts of water. At first the mixture becomes thick, but gradually thins down as the boiling proceeds. When the liquid is properly fluid it is filtered, and there is added to it four times its volume of strong alcohol. A precipitate forms, which is collected, washed with alcohol, and dried. The product is said to greatly resemble native gum arabic, but, expensive as the natural gum is at present, a substitute so prepared must be still more costly.

A FRENCH patentee proposes to, what he calls, animalise the ramie fibre by treatment with a mixture of nitric and sulphuric acids, whereby he obtains a nitro-derivative of the fibre, of the same character as nitrocellulose (gun cotton). This is then treated with an alkaline sulphide, whereby it is reduced and an amido derivative is formed. Stannous chloride, either in acid or alkaline solution, is capable of effecting the reduction. The fibre now acquires all the properties of an animal fibre, like wool, and is capable of being dyed without a mordant with the basic and acid coal-tar colours. This treatment, unless carefully carried out, can only result in the tendering of the fibre.

The external walls of cotton hairs have a considerable osmotic power, and it is this which enables the fibre to separate from their solutions a considerable number of soluble substances, such as tannin, and also to decompose certain metallic salts, retaining the metallic oxide. Such is not the case with the external walls of the fibres of hemp and flax, which have no similar absorbing or decomposing powers. When acids act upon cotton so as to tender it, either by strength of acid or by weak acids at high temperatures, the cellulose is only chemically changed by combining with the elements of water, forming the so-called hydrocellulose. This substance, when dry, has no structure; it is very oxidisable, and becomes soluble in alkalis, and to some extent soluble in water.

The end of the action of acids upon cotton is the change of it into glucose or sugar.

It has been shewn that a water containing much lime and magnesium is very unsuitable for general use in the dye-house. The amount of colouring matter and other wares, such as soap, which are wasted in a dye-house where a hard water is used would be astonishing indeed if one could put it forward in figures. To this loss must be added the cost and annoyance due to bad work resulting from the same cause. Nor is this all. It is well known that a hard water exerts an injurious action upon the wool fibre, making it "handle" badly. Thus, the whole work of the dye-house is more or less deteriorated, and falls short to some extent of the standard which would be attained if a more suitable water supply were available.

Foreign Correspondence.

TEXTILE MATTERS IN THE UNITED STATES.

BOSTON, March 5th.

A CHAPTER ON TRUSTS.

After long and weary waiting the American public has at length aroused itself to the enormity of the danger threatened by the rising power of Trusts, and other excrescences which have fastened themselves upon the commercial body. In no other country is wealth so aggressive, so vulgar, so ostentatious as here. It has created for itself an aristocracy—the aristocracy of money bags—whose members are much more offensive in their general bearing to the public than the most blue-blooded of Europe's nobility. Trusts are the outcome of feelings which in the nineteenth century take the place of those which influenced the marauding nobles of the Feudal period. They are a form of plunder which, it now appears, is not legalised. They bribe and corrupt the powers that oppose them, neither the Interstate Commerce Law nor the measure known as the Sherman Act, which was passed at the last session of Congress, having had the slightest appreciable effect in preventing the formation of combines which it was the very purpose of those laws to eradicate. Congressman Raynor, of Maryland, delivered an eloquent attack on Trusts during a recent sitting of the House, and his remarks have created a deep impression. The Standard Oil Company, which has throttled competition in every state of the Union, pays to-day an annual dividend to its shareholders five times as large as the whole capital stock originally invested in the enterprise; a syndicate of Detroit capitalists had monopolised four-fifths of all the lumber lands in the great lumber State of Michigan; another combine controls all the salt mines of the country; the whole system of telegraphic communication between 60,000,000 of people is virtually in the hands of Jay Gould, the controller of the Western Union; and not a ton of steel or copper can be purchased without paying the enormous tribute demanded by those who control the markets. These are only a few examples of American trusts, but they suffice for the purpose in view. The Standard Oil Trust having been declared illegal by a recent judicial decision in Ohio, an important meeting of certificate holders has been called for March 21, to discuss the propriety of dissolving. The capital of the Trust is £10,000,000, and the dividends during the last eight years have been 12%. Its exports last year were valued at £10,000,000, which represents two-thirds of the output.

THE CORDAGE TRUST.

Of more concern to persons interested in the textile trades is the history of the National Cordage Trust, which controls the production of all classes of ship and other cordage, rope, and binding twine. Nearly all the materials used are imported, including hemp and its substitutes, sisal, manilla, and jute. The capital of the Trust is £3,000,000. In 1891 it secured control of the eleven cordage factories in Canada. Forty-nine concerns are now controlled by the Trust, including the following

manufacturers of machinery: W. C. Boone, Jr., Brooklyn; J. C. Dodd, Paterson; and John Good, Brooklyn. The Hoover and Gamble Co., of Ohio, and the Watson Machine Co., of Paterson, are not in the combination. The *New York Commercial Bulletin* says that though the Trust has succeeded by herculean efforts in gaining control of over 90 per cent. of the manufacturing capacity of the country, it has done so only at great cost. Those concerns which sold out to the Trust last year were in a position to demand enormous prices for their plants. The result is that the Trust has paid for these properties a price higher than would be justified by the earnings under normal conditions. At the time of its organisation in 1887, the Trust announced as the object sought by its formation, an increase in the profits to be derived from a lower cost of materials by the removal of competition in the market, and from the economies to be derived from a decrease in the cost of production. It was asserted time and again that no attempt would be made to raise the prices of its finished products. These claims were repeated at the time of its organisation as a corporation, and finally in February last in the annual report to the stockholders in the following terms:—"Through these advantages secured by the control of many mills, and their management under one direction, the Company hopes to be enabled to secure an increased margin of profit without increasing the prices of its product to the consumer." The Trust, however, has not been a benefactor to the public, for prices have been manipulated just as it pleased, and for its own benefit. The *Commercial Bulletin* continues:—

The high prices of the raw material prevailing in 1889 were in part due to a shortage in the crop, but chiefly to the manipulation of the market by a combination of the Cordage Trust and English brokers. In the fall of 1888 this combination began to corner the product with such complete success that during a large part of 1889 they controlled nearly all of the stock. The prices prevailing in 1889 were those at which the Trust was willing to sell, and not the prices which it paid for the raw material. By this corner of the material the Trust was able to keep up the price of cordage to the high averages shown for 1889 and 1890, until it had succeeded in working off the whole stock on hand. The difference between the price of the finished product and of the raw material for 1890 was about the actual average difference in 1889 also. This shews that the Trust succeeded in making enormous profits entirely at the expense of the consumers. The reduction in the price of cordage in 1891 was made for a purpose. During the whole year the Trust was negotiating for the control of the independent establishments, and its success depended upon its ability to force these outsiders to terms. For had the Trust kept prices up, the outside establishments would either have refused to join the Trust, or would have held out for more favourable terms than they would have been willing to accept under other circumstances.

By October, 1891, the Trust had so far succeeded in securing control of the competing mills, that it was able to advance prices again. As a result, the price of cordage has been raised from 83¢ per pound to the present price of 113¢ per pound. And this advance has been made directly in the face of a declining market for the material. The present price of manilla for shipment is 63¢ to 7c. per pound. The difference between this price and that of the finished product is, therefore, 47.3c. per pound. The promise made by the Trust, that the increased profits which it hoped to secure from organization would not be at the expense of the consumer, has been completely forgotten.

Trust Profits.

In spite of the fact that the Cordage Trust engaged in open war during the whole of last year with the independent manufacturers for the purpose of forcing them into the Trust, it was able to make very large profits. During the fiscal year ending October 31, 1891, the Trust made a profit of \$1,406,313, which enabled it to declare dividends of 8 per cent. on the preferred and 9 per cent. on the common stock, and at the same time left a balance of \$106,313. As a result of the higher prices since October, the Financial Director of the Trust felt justified in making the following report for the quarter ending January 31 last:—"It is very difficult at this time to give an accurate estimate of the profits of the business for the quarter ending January 31. I feel safe in stating, however, that after deducting expenses, rentals, and all fixed charges, these profits will be found sufficient to pay the entire annual dividend of \$400,000 on the preferred stock and a quarterly dividend of \$250,000 on the common stock, besides leaving a large surplus." Should this rate of earnings be continued throughout the year,

the Trust will be able to pay the dividend of 8 per cent. on the preferred stock, 12 per cent. on the common stock, and have \$1,000,000 besides to be added to the "large surplus" earned during the past quarter, which latter will be increased 300 per cent.

There are, however, several powerful concerns outside the Trust, and their strength promises to grow as time goes on. It is therefore improbable that the large profits referred to will be maintained. Besides, the Trust has yet to answer for open violation of the Federal Anti-Trust Law, under which it is announced proceedings are being taken by the Attorney-General. In view of all this, the future of the Trust is by no means promising.

THE WOOLLEN CENSUS.

A preliminary report from the Census Office on the woollen trade for 1890 has just been issued. Special Agent North, in presenting the tables, says:—

The total quantity of wool consumed in the census year 1890 is found to have been 372,873,713 lb. in "the condition purchased," as compared with 295,192,229 lb. in 1880. By adding to this total the camels' hair and mohair, the wool contained in imported yarns consumed by domestic manufacturers, and the proper allowance for the washed and scoured wool included in the returns made under the head "In condition purchased," we may approximately ascertain the wool consumption of 1890 as equivalent to 423,000,000 lb. in the grease.

The apparent decrease in the number of establishments engaged in the manufacture of woollen goods is a continuance of the tendency observed in 1880. The census of 1870 reported 2,891 woollen mills; that of 1880, 1,999; that of 1890 shows 1,312. This decrease is due to the disappearance of custom carding mills, which formerly carded wool to be spun in families. The census of 1880 contained returns from 570 of these neighbourhood carding mills, besides 235 others which used less than 5,000 lb. of raw material per annum. These carding mills have now almost disappeared, while the number of fully equipped mills, supplied with machinery for all the processes of manufacture, has considerably increased, and there is a healthy growth in the machinery capacity of the United States, as will appear in the final analysis of the returns.

The custom carding mill is so distinctly an adjunct of household industry that the propriety of continuing to enumerate it in statistics relating to manufactures by automatic machinery may be doubted, except for the purpose of illustrating the gradual disappearance of the household manufacture before the advance of the factory system.

The decrease in the number of wool hat manufacturing establishments is also noted. This is attributable to the development of the fur hat industry, which has been excluded from the statistics.

A DUTY ON RELIGION.

Although not relating to textiles your readers will be amused to hear that a consignment of Spanish grammars has been stopped and 25 % duty claimed on the ground that several sentences referring to the copyright appeared in English. The Appraiser, however, allowed the books to enter free. In direct opposition to this ruling was another—in connection with the case of Geo. W. Reed v. Collector at San Francisco, Cal.—"Books in foreign languages," imported October 20, 1891. The merchandise consisted of 100 copies of the New Testament printed entirely in the Chinese language (upon which duty was assessed through error) and 1,000 hymn books, with preface, the title of each hymn and the tune being printed in English and the remainder in Chinese. Duty was assessed at 25 per cent. *ad valorem* under paragraph 423 N. T., and were claimed by the appellants to be free under paragraph 513 for books and pamphlets printed exclusively in languages other than English. The Collector was confirmed. Thus the Customs Authorities will not tax the books of the students of Spanish even where a few words of English appear, but if John Chinaman wants religion (which he does not as a rule—not the Christian form at any rate), he must pay for it. By this means the Government protect native worshippers from the competition for seats at church which might ensue if Chinamen were allowed unrestricted access to the Word of God. To say that the duty is for the protection of American printers is, of course, ridiculous in the case of books chiefly printed in Chinese.

News in Brief.

ENGLAND.

Alfreton.

Perhaps in no part of the kingdom did the untimely death of the late Duke of Clarence create greater sorrow than at the village of Swanwick, near Alfreton, which is famous for its high-class hand-made silk hosiery. The Princess May of Teck had instructed Mr. Stephen Elliott to specially manufacture for her wedding trousseau an assortment of silk hose, and the firm also intended to present to the Princess a special pair of silk hose on the occasion of her marriage. This present her Serene Highness consented to receive, and it has just been forwarded for her acceptance. The stockings were made of the finest white Italian silk, wrought in a graceful all-over open lace pattern, lavishly embroidered in white and gold, and bearing the Royal Crown and motto. The hose were enclosed in a handsome box, specially made of maroon Morocco leather, relieved in gold and lined with Royal blue satin, with ribbons to match. Mr. Elliott has received a letter from the Princess thanking him warmly for the gift.

Ashton-under-Lyne.

Mr. Alfred Shaw, manager of a Middleton mill, has been appointed manager of the new Minerva Spinning Co., Limited, out of many applicants. The appointment will, no doubt, be a credit to Ashton, as it will tend to infuse a little more energy into this lethargic town.

The death occurred on Wednesday, at the age of 71, of Mr. Nathaniel Buckley, at Alderdale Lodge, Droydsden. Mr. Buckley was an extensive landowner, and he was also largely engaged in business as a cotton spinner. He was a director of the Manchester and Salford District Bank, and a deputy lieutenant for Lancashire. In 1871 he was returned at a by-election for Stalybridge as a Liberal.

Batley.

The Science and Art Department have just made a grant of upwards of £700 in aid of the proposed Technical School at Batley, the erection of which will shortly be commenced.

Barrow.

The management of the Barrow Flax and Jute Works have declined to go on short time as an alternative to paying off a number of hands owing to some of the looms having for some time been employed in the manufacture of goods for which there is no market. It is held that going on short time would make matters worse than at present.

Blackburn.

Amongst Rishton weavers a proposition is being discussed of forming themselves in a Union.

Mr. W. Williams, who for some time has been employed in the Factory Department at the Home Office, has been appointed an inspector of factories, and will be stationed in Blackburn to assist in the administration of the Cotton Cloth Factories Act.

Yesterday morning an explosion took place in the economisers at Messrs. D. and W. Taylor's Bridge-water Mill, the disaster being caused by careless manipulation. The fireman and another employé were severely scalded, and have been removed to the infirmary. Damage to the extent of several hundred pounds was caused.

A fire broke out on Friday night of last week at No. 1 Commercial Mill, Great Harwood. The local brigade, the Accrington steamer, and the Clayton-le-Moors brigade attended, and confined the fire to the tape room and engine house, which were totally destroyed. There were in the weaving shed 528 looms. The damage is estimated at £5,000, covered by insurance.

Bradford.

The loom-making business is improving, but most of the concerns are still working only four days in the week.

The broad looms are generally well employed at present, but the narrow looms are very short of work; most of them indeed are standing.

The death of Mr. Arthur Briggs, of the firm of Messrs. Milligan, Forbes, and Co., stuff merchants, Bradford, occurred on Tuesday, at Colombo, Ceylon. The cause was heart disease. The deceased gentleman was in his 56th year.

A meeting was held on Monday night of the Joint Committee on Weavers' Earnings, consisting of six representatives of the Council of the Bradford Chamber of Commerce and six representatives of the operatives of the town. On the motion of Mr. Arnold Forster, it was decided that a letter be addressed to the secretary of the Royal Commission on Labour, giving a summary of the proceedings in connection with the enquiry as to weavers' average earnings, and that the following paragraph be embodied therein (to follow the recital of Messrs. Heselton's report):—"On the pro-

position of Mr. F. Craven, seconded by Mr. S. Shaftoe, it was unanimously resolved that the report submitted by Messrs. Heselton be adopted. The operatives' representatives on the committee stated, however, that whilst not disputing the figures in Messrs. Heselton's report as far as they went, the percentage of broken time in their opinion must have been much higher, and that they estimated it at 18 to 20 per cent. They also contended that the average rates of wages given in the report were above the true average rates actually earned throughout the district, as would have appeared if all the firms had replied."

The annual report of the Bradford Technical College is a record of successful work. The balance in the bank amounts to £2,918 6s. 6d. The receipts include £371 9s. 6d. in respect of engines, tools, and cloth made for sale and in process of making. The income during the year 1891 has exceeded the expenditure by £1,092 16s. 6d. The students in the Textile Department number 159, and in the Engineering 205, the total in all departments being 1,257. From the report we make the following extracts:—"The Textile Department has obtained more valuable medals and prizes in the examination of the City Guilds than any similar institution. The City and Guilds of London Institute have intimated their intention of ceasing to make grants after this year. This item of income, averaging about £80 a year, will therefore disappear from the college accounts. The Council, on the recommendation of the Textile Committee, have reorganised the Textile Department, by providing a complete set of new hand-loom, and appointing a teacher to take charge of the practical instruction. The Council further intend giving a diploma to students who take the full college course and pass the required examination in the theory and practice of weaving and designing. The Council tender their hearty thanks to Mr. B. Cohen for his generous offer of £20 annually for prizes to be given to the students of this department."

Bolton.

The new Technical School was inaugurated on Saturday at Bolton by Mr. Alderman Dobson (Messrs. Dobson and Barlow, Ltd.). An account of the proceedings is given in another column.

Bury.

On Saturday night the members of the Bury and District Cardroom Association held their annual tea-party and ball, over 300 attending.

The first convivial gathering which has been held for 24 years in connection with the local branches of the Amalgamated Engineers' Society, was held on Saturday night at the Queen's Hotel, Bury, when 109 sat down to an excellent tea. Afterwards a very pleasant evening was spent under the presidency of Bro. Councillor Collinge, J.P. A special feature was that the 52 superannuated members in Bury were given complimentary tickets, and 38 of them attended.

The weavers at the Daisyfield Mill, Elton, tendered seven days' notice on Wednesday to leave work, because of certain complaints they make about "humbugging" by the clothlooker, and the frequency with which they are shewn faulty places in their pieces, etc., and also for an alleged ordering off the premises of the Weavers' Association's secretary by one of the firm. A meeting of the weavers was held on Tuesday evening at the close of working hours, when the secretary contended that the faults in the pieces could not be very bad, because very few fines were imposed, and that being so, there was no necessity for the weavers having to go to the warehouse two or three times for each piece. They were determined to fight this matter, and not give way until the association's officials were recognised by the firm, let it cost them what it would.

Dewsbury.

On Thursday evening a conference of the English and Scotch Carpet-weavers' Association was held at the Industrial Hall, Dewsbury. Delegates were present from Heckmondwike, Dewsbury, Barnard Castle, Aberdeen, Ayr, and Kilmarnock. Mr. R. Fisher, of Dewsbury, presided. Mr. John Taylor, secretary, read the annual report, which showed that the trade had been anything but satisfactory during the year. The report and balance sheet were adopted, after which several propositions which had come from the various firms and were recommended to be brought before the makers' association were considered. One asking for a 10 per cent. advance on all fabrics was struck out, as it was thought useless to submit it in the present state of trade. It was agreed to ask for all cotton and woollen goods to be paid alike; for a 2 and 2½ broad loom to be paid the same price as yard-wide; for ½d. per square yard on all Hardwick patent; both broad and narrow to be paid for tying on a warp a second time; that overtime be done away with; to be paid for all altering from one fabric to another in broad looms; and that two-ply art squares be paid the same price as yard-wide on all fabrics.

A statement of affairs has been issued by the Dewsbury Official Receiver in the matter of John William Priestley and Frederick N. Priestley, woollen manu-

facturers, of Littleton and Leeds. The liabilities are stated at £21,000, and the deficiency is about £12,000. The loss is ascribed largely to the effect of foreign tariffs.

Golborne.

The mills and weaving sheds belonging to the Golborne Mills Co. have been closed since Monday of last week, on account of the masters having declined to pay the "fancy" prices demanded for coal. This affects nearly 1,000 hands.

Halifax.

In the Chancery Division on Saturday, Mr. Justice Chitty had before him a petition for the reduction of the capital of J. Crossley and Sons, Limited, which company was incorporated in 1884, and was still carrying on a prosperous business as carpet manufacturers at Dean Clough Mills, Halifax. The company was incorporated in 1884, with a nominal capital of £1,650,000, divided into 110,000 shares of £15 each, and by special resolutions the capital was subsequently increased by the creation of 40,000 new shares of £15 each. In all 118,797 shares had been issued, and £10 had been paid upon them. On the 10th November resolutions were passed for reducing the capital from £2,250,000 in 150,000 shares of £15 each to £1,187,970, divided into 118,797 shares of £10, by reducing the nominal value of the issued shares from £15 to £10, and cancelling the 31,203 unissued shares, and it was to that proposal that the confirmation of the court was asked. Mr. Farwell, Q.C., stated that the object was to make all the shares fully paid up, and he had a certificate which showed that creditors to the amount of £152,774 had assented to the proposal, and that the few who did not assent had been paid off. The company had a reserve of £243,000. Mr. Justice Chitty confirmed the reduction.

Haslingden.

The dispute between the Cotton Operatives' Federation and the Hazel Mill Co., Ltd. (the mill which they attempted to close by calling on to strike all their members), is now practically at an end, as Hazel Mill continues working full time again, and with the exception of the mule spinners, whose services are not required, the company have as many operatives as they now require. On Monday, and also every day during the past fortnight, 130 men have been at work. When the weaving shed is finished there will be a great increase on this number.

Huddersfield.

In the course of a series of articles on the effects of the McKinley Tariff, a writer in the *Leeds Mercury*, referring to Huddersfield, says:—"A strike which occurred some years ago was settled by a compromise, under which the manufacturers appear to have surrendered to some extent their liberty of altering the internal arrangements of their weaving and other departments, so that they are handicapped with regard to facilities for adapting themselves to changes of fashion. We are informed that they are not permitted by the regulations in force to make different arrangements with their weavers, but are bound by a specific agreement which hampers them and prevents them making the best use of their machinery. As an illustration of the manner in which they are handicapped, it was pointed out that while at Bradford a manufacturer was at perfect liberty to put one weaver to attend to two looms, and, in fact, does so, the Huddersfield manufacturers would not be permitted to adopt this course, the rule being that there should be one weaver for each loom. As to the future, manufacturers believe that before the trade of Huddersfield can be again placed upon a sound footing, there will have to be a rearrangement of the agreement with the workpeople, which will give the employers entire freedom to make the best of their machinery, and enable them to economise in various ways without having to consult the agents of the Trade Union."

London.

Messrs. M. Wells and Co., manufacturers of the well-known vaseline oils, etc., Hardman-street Oil Works, Manchester, have appointed Messrs. S. and E. Ransome and Co., Essex-street, Strand, W.C., their sole agents for London and district.

Under the auspices of the Irish Industries Association a sale of work was held on Thursday at Londonderry House, Park-lane. At the Duchess of Abercorn's stall a large quantity of Irish lace was sold, and at the Countess Spencer's specimens of bog-oak. The Countess of Aberdeen and Lady Fanny Marjoribanks had a stall for the sale of Irish home-spun tweeds, and did a very large amount of business.

Macclesfield.

The inside weavers have obtained an advance of wages to list price on all goods over 24 inches. The outside weavers, having no combination, have not done so. The employers state that even with the advance the workpeople are no better off, as they formerly received a bounty on the goods woven. Now they will receive no bounty. The weavers declare, on the other

hand, that their wages are considerably increased. Generally the advance has been conceded without difficulty.

Manchester.

Mr. Arnold Heussy, lately in partnership with Mr. W. H. Foxwell, has established himself at 32, Exchange Arcade, as a textile machinery and general engineering agent.

A somewhat serious fire occurred on Wednesday afternoon at the warehouse of Messrs. Baerlein and Co., merchants and engineers, King-street, Salford, in the portion of the premises devoted to the preparing and packing of cotton waste. The damage was confined entirely to the building in which the fire began. The loss is roughly estimated at between £4,000 and £5,000 (insured).

Yesterday week, at the Mitre Hotel, Manchester, a meeting of the Central Committee of the North and North-East Lancashire Cotton Spinners' and Manufacturers' Association was held "for the purpose of considering a suggestion with reference to the proposed uniform list of prices for weaving, and also for the purpose of considering an enquiry from the Federation of Master Cotton Spinners' Associations, asking the opinion of the committee as to taking off the last advance of wages of 5 per cent. given to spinners." After consideration it was decided, as there was very little spinning in the district, not to take any action in the matter of assisting Oldham in reducing the wages.

On Saturday last the students in connection with the cotton classes at Halifax and Sowerby Bridge, numbering about 30, with their teachers, Messrs. W. H. Kershaw and J. Cooke, paid a visit to the works of Messrs. Brooks and Doxey, cotton machinists, Manchester. The party first proceeded to the Junction Ironworks, where they were met by the manager, Mr. Harlin, who conducted the party over the works, explained the various machines in course of construction, and pointed out the latest improvements made in them. The party then proceeded in omnibuses provided by the firm to the Union Ironworks, West Gorton, where they were met by Mr. Compston, Messrs. Brooks' representative, who showed them over the main works, and explained the advantages afforded by the various machines, especially the ring frame and the patent frictionless revolving flat carding engine. Tickets were then given to the students to admit them to Belle Vue; also inviting them, along with a number of students from Lancashire, numbering altogether about 180, to an excellent tea, generously provided by the firm.

New Mills.

At the Petty Sessions, on Wednesday, Messrs. John Bennett and Sons, calico printers, Birch Vale, were summoned for employing three women after six o'clock on the 24th ult., and also for allowing four women to work overtime without the time and particulars being entered into a book provided for the purpose. A fine of 5s. and costs in each case was imposed; total, £1 19s.

Nelson.

The Government has decided to make a special grant of £1,000 towards the cost of erecting the public free library and technical school in the borough of Nelson. The estimated cost of that scheme is about £7,500.

Nottingham.

A meeting under the auspices of the National Association of Hosiery Workers was held in Nottingham on Thursday for the purpose of discussing the needs and advantages of trades-unionism. The chairman (Mr. S. Bower) said that since the commencement of the Federation two years ago the hosiery workers belonging to it had increased by over 2,000. They now numbered 5,000 members. Since their formation they had spent between £7,000 and £8,000 in strikes. They had spent £7,000 on the Hineckley strike. Nottingham was not so well organised as Leicester. He did not believe that in the rotary branch there were more than 50 men outside the union, but he could not speak for the Circular Society. Of the women there were about 400 in the union. When they considered that in Nottingham they had at least three women to every man, they could see that there was at least great scope for labour organisation among the women. Females went into the factories for from 9s. to 15s. a week, while men expected at least 30s. A resolution was carried that the meeting recognised the absolute necessity of combination for protecting their wages, etc., and urged all, especially women, to join the union at once.

Oldham.

Machinery has commenced to be delivered this week to the Holly Mill Co.

We understand that the new insurance tariff for cotton mills is causing a little uneasiness.

It is reported that the projected new ring mill in Chadderton has been allowed to lapse for the present.

The directors of the Parkside Spinning Co. have not yet given out the machinery order for their No. 2 mill, which is in course of erection.

It is stated that another fortnight or so will elapse before the engine of the Ellenroad Mill Co. is ready for commencing work.

At the local Police Court on Saturday, Mr. Frank L. Ogden, of the Bell Mill, was fined 1s., including costs, in two cases for a breach of the Factory Act; the Prince of Wales Spinning Co. 20s. and costs in two cases, and Mr. Silas Worthington, roller coverer, 5s. and costs in two instances.

There are about a couple of preparation or card-room machinery fixed at the new mill of the Pine Spinning Co., though it is stated the mules are not in so forward a condition. The engines will be ready for work in the course of a few weeks. No manager has yet been appointed.

The whole of the preparation and spinning machinery required by the Atherton Cotton Spinning Co., Limited, for their No. 3 mill, is being supplied by Messrs. Platt Bros. and Co., Limited, Oldham. When the present mill is completed the company will own 133,000 spindles.

With the improvement in the weather the work in completing the mill of the Pearl Spinning Co. is now being pushed on with. It commands a very fine view indeed from the O., A., and G. B. Railway, and appears a mammoth structure, standing on an elevation. The chimney is about half completed, and the mill is being roofed. When finished the mill will undoubtedly be the finest in the Oldham district. It will contain close upon 120,000 mule spindles.

Radcliffe.

For some weeks past the representatives of the Masters' Association in Radcliffe have been in negotiation with the representatives of the Weavers' Association, with the object of forming a uniform list to govern the coloured goods trade in the district, and at one time a strike on a big scale seemed imminent. However, wiser counsel prevailed. At the meeting held on Tuesday at Manchester, a list was completed with which both sides expressed satisfaction. The list is one which gives a fairly good advance on the Colne list.

Ramsbottom.

[Messrs. Ramsbottom's mill at Turton has been stopped all week for repairs to the machinery.

Shipley.

Mr. John Denby, who was until recently head of the firm of William Denby and Sons, manufacturers, of Shipley and Tong Park, died at Harrogate on Wednesday. The deceased was seventy-four years of age. He leaves a widow, three sons, and five daughters.

Stalybridge.

In connection with the strike at Stalybridge there was some rioting in Dukinfield at a late hour on Friday night of last week. A large mob had gathered in the streets, and many of the people were armed with missiles. The "knobsticks" were vigorously attacked, and when the police came upon the scene the mob turned their attention on them. Staves had to be freely used.

The attempt to settle the dispute here has failed. The directors of the Stalybridge Spinning Company's mill, at which the question of compensation for bad work had been raised as a test, met the members of the Employers' Association of Lancashire at Ashton on Wednesday, when the proposals for arbitration were rejected. All negotiations, therefore, after a strike of six months' duration, are at an end. The mill is nearly full of non-unionist hands.

Wigan.

Under this heading last week it was incorrectly stated that a Bolton firm was putting in several pairs of new roving frames for Messrs. Eckersley and Sons. The order is being executed by Messrs. Brooks and Doxey, of Manchester, and the frames are now erected. We understand also that this is a further repeat order, and that the whole of the preparation machinery put in by Messrs. Eckersley during the past few years have been supplied by Messrs. Brooks and Doxey (late Samuel Brooks).

SCOTLAND.

Dundee.

Although the Dundee jute spinners recently resolved to close their works every Saturday for six months, in consequence of the state of the markets, this has not had the desired effect, the present state of trade being very gloomy. A general opinion now prevails that the hours must be further reduced, and six large firms have posted notices that on and after yesterday work will cease from one o'clock on Friday afternoon until Monday morning. This is a reduction of ten hours per week.

The death of Mr. Alexander Patterson Thomson, manufacturer, Seafield Works, Dundee, occurred on Monday. He long carried on the business of a bleacher in the neighbourhood of Dundee, but for nearly thirty years had been living in retirement. He was, along with his two brothers who pre-deceased him, a partner

in the firm of Messrs. Thomson, Shepherd, and Co., Scafield Works. Mr. Thomson in his later years took an active interest in horticultural matters, and was a frequent exhibitor and prize-winner at local shows. He had reached an advanced age.

Glasgow.

The personal estate of the late Mr. Francis Sandeman, yarn merchant, has been returned at £8,848 5s. 2d.

In some of the mills in the East-end where fancy dress goods are manufactured half of the looms are standing idle. However, those engaged in the muslin trade are well employed, as this class of goods is meeting with a greatly increased demand.

A manifesto of traders of the United Kingdom was published on Monday, protesting against the agreement between the Caledonian and North British Railways for twenty-five years. The signatories pledge themselves to place all their traffic on the Glasgow and South-Western and Midland systems.

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 to date for the year. 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.
£56,764	8,353	5,410	194	443	7,558	78,729	1,051,287	
88	16,064	372		181		16,795	247,131	

The following are the total values of the export for the same weeks of last year:—Cotton, £1,033,710; linen, £241,439.

IRELAND.

Belfast.

It is asserted that several of the locked-out linens have been given employment by firms in connection with the Merchants' Association on terms pleasing to both sides.

The first public meeting of the Belfast Mechanical and Engineering Association was held last week, when there was a large attendance of engineers and foremen mechanics, also a number of gentlemen interested in engineering works. The chair was taken by Mr. James Gamble, vice-president. A paper on "The History of the Steam Engine" was read by Mr. Jordan Nichols, the president of the association. At the close of the meeting, Mr. John Erskine, of the Wolfhill Spinning Co., Limited, was elected honorary president, and Mr. Robert Ardill (of Messrs. Combe, Barbour, & Combe, Limited), honorary vice-president.

Lurgan.

On Wednesday the marriage was celebrated, in Bangor Abbey Church, of Mr. W. J. Allen (Johnston, Allen, and Co., Lurgan), Lenniney House, and Miss Ross, eldest daughter of J. Ross, Esq., linen manufacturer, Lurgan.

Miscellaneous.

REMINISCENCES OF DUNDEE SEVENTY YEARS AGO.

III.

For 90 years a Government bounty had been paid on all linens exported to foreign countries, but after much discussion pro and con it was resolved in 1823 to gradually abolish it, and finally it altogether ceased in 1832. Thus the greatest efforts were made to secure it on every available piece of cloth, and consequently the warehouses were almost cleared out. The result of this excessive consignment was most disastrous, not only because it over supplied all the foreign markets, but also because goods altogether unsuitable for many of them had been sent. The loss arising, indeed, was much more than the whole sum received as bounty. It had amounted to from 10 to 25 per cent. on the value of the goods; even finally it fully covered the expense of finishing, packing, shipping charges, and freight to the port of destination. The prospect of trade after its close looked very gloomy, especially for the working classes in Dundee and all the surrounding district. This, however, was mitigated by the demand which increased for our home markets. London was open to receive our goods, and as stocks increased here the manufacturers began to consign them for sale on commission, receiving ready advances. This continued for many years, and in seasons of stagnation was resorted to, ending in almost all cases in loss. Nothing was more damaging to the credit of any manu-

facturer than the knowledge than he was carrying on this system, unless on exceptional occasions.

Any notice of spinning by steam power in Dundee would be incomplete without a reference to Ward Foundry. In or about 1810 James and Charles Carmichael commenced business in Dundee as engineers and ironfounders. In 1814 the *Tay*, the first steamboat launched in this district, appeared on the passage to Perth to be followed in a few years by the *Caledonia*, the *Athole*, and the *Hero*, engined by them, or partly so. In 1821 their first twin steamer was placed on the Newport passage, and proved the means of linking the Fife trade to Dundee, which, needless to say, was a matter of great mercantile importance. Meantime the brothers directed their attention to making steam engines, to meet the increasing demand for flax-spinning mills, which by 1820 was becoming considerable.

Flax-spinning by power had its origin in Yorkshire, and about the end of last century it was introduced to this district by Mr. James Aytoun at Kinghorn, in Fife, and by others at Bervie and Kinnethel, all under a royalty to a Darlington patentee. The finer yarns were retained by the Leeds spinners, but here the heavier and coarser qualities were spun, a distinction which has largely remained up to the present time. Spinning mills continued to be erected in this locality somewhat slowly, it is true, and in many cases they were far from successful till about 1818, when a decided advance was made.

In 1807 there were only four flax-spinning mills in Dundee, with a total power of 63 horses. Of these the Bell Mill (fire-proof), which was erected by Mr. Brown at a cost of £10,000, was the chief.

In 1811 the trade was most disastrous, and this mill was advertised for sale, but for many years afterwards it remained in possession of the family. The other three mills were at first equally unsuccessful. One of them, the Tay-street Mill, owned by a Mr. Cathro, and costing £8,000, was offered for sale at an upset price of half that amount.

Mr. Alexander Warden gave a list of spinning mills in Dundee in 1822, with the year of their erection and their respective horse-power. It is as follows:—James and Wm. Brown, 1708, 20 h.p.; James Carmichael, 1798, 6 h.p.; Chalmers and Hackney, 1798, 12 h.p.; Andrew Brown, 1807, 25 h.p.; Mrs. John Scott, 1813, 6 h.p.; Peter Davie and Wm. Boyack, 1818, 6 h.p.; Bell and Balfour, 1821, 13 h.p.; Chalmers and Hackney, 1821, 20 h.p.; Henry Blyth, senr., Ward-road, 1820, 6 h.p.; Alexander Milne, 1821, 6 h.p.; Wm. Baxter and Son, 1822, 15 h.p.; George Gray, 1822, 8 h.p.; Kinmond and Co., Constable-street, 1822, 12 h.p.; John Sharp and J. Preston, 1822, 10 h.p.; Wm. Shaw, 1822, 6 h.p.; James Hynd, 1822, 4 h.p.; and David Lawson, 1822, 4 h.p. In all, 17 mills of 178 h.p., and containing 7,944 spindles. In March 1826 the number of hands employed in these 17 mills is given at 2,001 in all, including 247 hand hecklers. In addition to these there were at the same date in Lochce and within a circuit of about five miles the following mills:—Watt and Brown, 247 spindles; William Anderson, 144 spindles; Boyack and Co., Windy Mill, 180 spindles; P. Kinmond and Co., Grange Mill, Monifieth, 144 spindles; Roxburgh and Halley, Monifieth, 210 spindles; James Smith, Rose Mill, 120 spindles; William Anderson, Balunie, 240 spindles; Banks and Fairweather, Monifieth, 264 spindles; William Baird, Duntrune, 396 spindles; Low, Samson, and Miller, Baldovan, 180 spindles; Hay and Ireland, Kirkton, 192 spindles; and a few others, the total being 3,156 spindles.

There were also several mills in the neighbourhood beyond the five mile circuit, of which the most noteworthy were those of William Baxter and Son, Glamis, 600 spindles; James Watt, Douglstown, 420 spindles; J. Taylor and Co., Ruthven, 512 spindles; David Grimond, Lorenty, 240 spindles; Robert Templeman and Co., Carnoustie, 360 spindles; Alexander Dick, Rattray, 270 spindles, and several others of lesser note, giving in all a total of 3,282 spindles.

Between this period (1822) and 1825 business generally was fairly prosperous, and in Dundee large additions were made by James and Wm.

Brown, also by John Brown and several others. In 1825 Baxter Brothers and Co. made additions to their Lower Dens Mill, and installed an engine of 90 h.p. In 1833 they began the erection of Upper Deans Works, subsequently the largest and finest in Scotland, all being under the management of the late Mr. Peter Carmichael, of Arthursstone. In 1828 A. and D. Edward and Co. began their Logie Works with 30 h.p., but their machinery and premises were subsequently largely extended. Somewhat earlier John Morton, from Prestonholm Flax Mills, near Edinburgh, started a mill at Wards, under the firm of John Morton and Co., and subsequently of J. and W. Morton. The same parties were also interested in a mill at Arbroath. Mr. John Haddon, subsequently of Haddon and Paterson, yarn merchants, was manager of the flax dressing, and was long well known as an authority on the values of the various kinds of flax. During this period several mills were built and large extensions were made on the machinery in those in existence. Amongst those who began spinning about this time, although not exactly in this order, for our notes are not history, but only reminiscences, were John Crichton, James Forbes, William Gray, Thomas Deas, Dens-road; Alexander Dick, Blackscroft; James Tawse, John Gray, Wards; John Halley, Wm. Halley, Kinmond and Hill, Pleasance; Miln and Holden, Hillbank; Alexander Low, Dens-road; Thoms Brothers, and several others, some of whom we have previously mentioned. Many of these names and those previously referred to have disappeared, but several of them have become eminent in commercial circles.

In 1832 a decided impetus was given to the trade, and there were then at work or in process of erection in Dundee and Lochce mills of about 1,420 h.p. In Forfarshire, Fifeshire, and Perthshire there were also at work at this time mills, driven by steam and water, of about 1,440 h.p., exclusive of those running in Dundee. The steam engines which furnished the motive power for these mills were made chiefly in Ward Foundry, and some of these are still working. Others were constructed in the West and South, and a few in Dundee Foundry. The spinning machinery was made chiefly in Leeds, and subsequently by Messrs. Low, Monifieth, and others, among whom may be mentioned Daniel Duff; Umpherston and Kerr, by whom many of the water-wheels were made; and by Peter Borrie, Trades Lane Foundry.—*Dundee Advertiser.*

THE cotton-spinning factory of Augustus Braunlich, at Pottschach in Lower Austria, which was worked by the creditors of the firm, was recently completely destroyed by fire. The loss is estimated at 120,000 florins.

BOILER INSPECTION AND REGISTRATION.—A Bill introduced by Sir E. Lechmere, M.P., provides that every boiler, with certain exceptions, throughout the United Kingdom, shall be periodically examined and certified as safe. However, the examinations are not to be made, nor are the certificates of safety to be granted by the Board of Trade or by any other department of the Government, but by inspectors chosen by the owners. Each owner will be held responsible for the competency of the inspector whom he chooses. The certificates of safety are to run for a term not exceeding 13 months as a rule; but the Bill contains provisions for extending this term where necessary to meet the convenience of boiler owners. The certificates are to be renewable on re-examination of the boilers. To insure the examinations being made regularly, the certificates of safety granted by the inspectors are required to be forwarded to the County Council. The council is to keep a register of the examinations made and to grant to the owner a certificate of registration in exchange for the certificate of safety. Moreover, the County Council is directed to take proceedings against owners who neglect to have their boilers examined and to forward certificates of safety. The owner is to pay for the examination of his boiler, and also to forward a small fee to the County Council to meet the expense of registration. The boilers that are exempted from the operation of the Bill are those used exclusively in the Queen's service, those used on board certain steamships or on board sea-going vessels, those used as railway locomotives, and those used exclusively for domestic purposes in private houses. An exemption may also be granted by the Board of Trade where they deem it expedient, owing to the special character of any boiler or class of boilers.



BOLTON TECHNICAL SCHOOL.

BOLTON TECHNICAL SCHOOL.

OPENING CEREMONIAL.

On Saturday the new Bolton Technical School, situated in Mawdsley-street, was opened by Mr. Alderman B. A. Dobson, J.P., in the presence of over 600 of the friends of local education. The neighbourhood of the school—the old Mechanics' Institute building—was thronged about four o'clock, the time fixed for the opening ceremonial. The members of the Technical Instruction Committee assembled at the Town Hall, and proceeded to the school, and a few minutes afterwards the Mayor's carriage, containing his Worship (Alderman Nicholson, J.P.), Alderman Dobson, J.P., and the Town Clerk (Mr. R. G. Hinnell) drove up.

The MAYOR, addressing Alderman Dobson, presented him with a beautiful gold key, the gift of the committee, with which to open the building.

Mr. Ald. Dobson, in accepting the gift, expressed his sense of the honour conferred upon him, and said he looked upon that as one of the most interesting episodes of his life. He hoped he would be able to look with satisfaction in the future upon that school when it had proved, as he believed it would do, of value to the town. He then unlocked the door and declared the school open.

The numerous company then assembled in the large lecture hall, which was filled to its utmost capacity with a most representative assembly. The Mayor presided, and was supported on his right by Alderman Dobson and a large number of leading Bolton gentlemen.

The MAYOR opened the proceedings by reading a letter from Alderman Fielding, the chairman of

the Technical School Committee and Deputy-Mayor. The writer said he was exceedingly sorry to be deprived of the pleasure of being present at the opening of the Technical School, but he had got a very severe cold, and the doctor had absolutely forbidden him to leave the house. He forwarded the observations which he had intended to make, and which might be read to the meeting if thought desirable. Letters regretting absence had also been received from several other gentlemen.

The MAYOR then read the following observations which Alderman Fielding had intended to make if he had been able to be present:—"We are gathered together to take part in an interesting event in our town's history—the opening of the Technical School of this borough. A few words on the history of the formation and development of this school cannot now be out of place. The first step was taken on February 28th of the Jubilee year, 1887, when it was resolved at a town's meeting that one mode of commemorating that auspicious event would be the establishment of a technical school. An offer was made by the trustees of the Mechanics' Institute to hand over their building for this object, and as a result of an appeal for subscriptions a sum of £4,000 was quickly promised, and this has since been increased to £5,900. For some time after this the scheme made little progress, but ultimately in January, 1891, the Town Council voted a sum of £1,000 towards altering the building, and promised to maintain it when fully equipped. Messrs. Bradshaw and Gass were appointed architects, and the alterations were proceeded with under the advice of the committee then existing. More extensive alterations were required than it was originally expected would be the case, and when the building was handed

over to a committee of the Town Council about the middle of the last year, of which committee I was appointed chairman, it was found that a further sum of from £2,500 to £3,000 would be required to complete the building properly, and furnish it with all that was needed. In addition to this, machinery and fittings to the value of nearly £3,000 have been presented. All this has resulted in providing an institution as complete and compact for its size as any in the kingdom. There will be accommodation for 1,000 students, and I sincerely trust this number will soon be forthcoming. Already 337 students have joined the classes, and we are thus taking our share in keeping for this nation that commercial supremacy it has hitherto enjoyed. . . . When you hear that the subjects to be taught include cotton spinning, weaving, and mechanical engineering, metal working, tools, carpentering and joinery, dyeing, bleaching, plumbing, hosiery, wood turning, Sloyd, etc., you may think that the object of such instruction is to teach these various trades and to promote success in business, but this is taking too narrow a view—the object is rather that the pupils may be trained in the principles that underlie the various branches of industry, so that they may be ready to avail themselves of the new discoveries and inventions of science, and put these inventions and discoveries to the best use in the great hives of industry in our own town. Considerations such as these not only justify our Town Council in expending money on the equipment and maintenance of this building, but even shew how unwise we should be in Bolton if we did not take such steps to maintain and improve what is often toasted 'The town and trade of Bolton.' Long may it flourish." (Applause.)

The MAYOR said after the clear and comprehensive,

yet concise, statement of the Deputy-Mayor, he did not intend to say many words. He sincerely regretted Alderman Fielding's absence, but in the person of Alderman Dobson they had a townsman and a large employer of labour, who was felt by the Committee to be the proper person to undertake the duty of opening that building. (Applause.) He congratulated the Committee upon this fact, because Alderman Dobson was the president of the old Mechanics' Institute at the close of its existence, and to a large extent he had had charge of the business connected with the transition. In addition to these circumstances his large-hearted generosity and his whole-heartedness in the disposition and desire to help on anything that would advance the interests of our good old town of Bolton signally marked him as a fit and proper person to open the institution. (Applause.)

Mr. Alderman DOBSON, on rising, was very warmly received. He said the epitome of the objects of that institution, as read by the Mayor and written by the ex-Mayor, the present chairman of the Committee, had taken a great deal of the ground from him in giving what would be an address on technical education, upon which he would be expected to say something. There seemed to be rather a misunderstanding on the part of many of their friends and supporters with regard to what a technical school should be. The word "technical" was hardly perhaps the word that should have been chosen to represent the meaning of what those schools were intended to be. "Technical" came from a Greek word which meant "art." The intention of technical education was to assist in industrial matters rather than in art. The idea of enabling any person in the country who had a natural adaptability to learn art was recognised so many years ago as 1851, in the year of the Exhibition in London, the first of the universal exhibitions, as it was generally understood that English workmen fell behind their foreign competitors in regard to matters of taste in art. The first assistance given for that purpose was given by the Board of Trade, and it was not until 1857 that the Education Department took over the education of art in connection with the South Kensington Science and Art Classes. These persons who had the opportunity of comparing education given here with that given in other countries had always been of opinion that we stopped short of a certain mark that we ought to have passed, namely, in that portion of education that would assist a workman in his every-day avocations. It was not surprising that a number of persons complained under the impression that they were going to teach manual trades in that technical school. That was true to this extent, that a young man would be able to learn a certain portion of his manual trade there, but it had never been expected of anybody who had any responsibility in teaching technical education that it should supplant practical work in the workshops. Not for one moment. The idea was that a man, in the course of his ordinary avocation, whether cotton spinning, weaving, or iron working, or whatever his work might be, had to work very hard with his brains to understand what would have been very much easier for him to understand if he had been taught that particular point before. That was the sole object of technical education: to enable a man when a difficulty occurred to him in his every-day work, when he would lose time, and fatigue his brain by thinking the matter out, to see that such and such a method was the way of getting over the difficulty. But he assured them in the most solemn manner possible that it did not matter however much theoretical education they obtained—it would never replace the practical portion of the workshop. (Applause.) He had seen the effect of that abroad. The foreigner understood the theory of engineering, or weaving, or cotton spinning, or dyeing, but generally speaking they were incapable of applying it to practice. On the other hand the English workman could do the work but could not explain it. Well, he would rather of the two have the man who could do the work. (Laughter and applause.) He thought, as the ex-Mayor had said, that as regarded the school and its equipment Bolton had nothing to be ashamed of. He did not know a school that was more complete. There were schools that went in for more subjects, but he did not know one that was more complete. The number of students had been mentioned at 1,000, and he did not see why they should not have that number. He was glad that the work of seven years ago had culminated in the result attained that day. There was a gentleman sitting close to him (Mr. J. P. Thomasson), but for whose generosity that result would never have been arrived at. (Applause.) When things looked very black indeed, as black as they could look, it was his action which braced up the courage of one or two members of the Committee, who insisted that the matter should be brought to the front and progress; and it was his timely help that enabled the Committee to make such a bold show that the original subscribers were induced to continue their subscriptions. He did not regret the fact that the school had cost a great deal more than they thought it would, because the efficiency of the school had been increased. There were certain unfortunate occurrences

that nobody could guard against in connection with the architectural disposition of the building. He was chairman of the Committee that had the thing in hand, but his responsibility was only in knowing of it a bit sooner. When the Corporation took the school over they took it over with as much knowledge of the condition of things as the Committee had. That was a very proud position for him to occupy that day, and he knew that his name would in some way be attached to that auspicious occasion. He had had a testimonial of the day presented to him which he hoped he should never forget, and it would be a very proud heirloom in his family. (Loud applause.)

The Rev. J. W. CONDEY moved a vote of thanks to Ald. Dobson for his services in opening the school, which was seconded by Mr. TUNSTALL, and supported by Councillor HERBERT FLETCHER.

Mr. Alderman DOBSON, in returning thanks, supplemented his previous observations by saying that the reason why technical education had become necessary was in a great measure due to the fresh conditions of industry with regard to the sub-division of labour. In the old days an apprentice was bound to a master who knew his business, and the apprentice was taught the details of that business all through. That was no longer possible. Technical education was intended to replace the old system of apprenticeships. With regard to Mr. Fletcher's remarks that it was a matter of business for an employer to establish technical schools, he could only say this, from 20 years' experience, that whenever an employer was getting anything out of his business, the workpeople took care that they got their share of it. (Laughter.)

Other votes of thanks followed, after which an inspection of the rooms was afterwards made, the machinery being in full working order, and at the invitation of Ald. Dobson the visitors partook of refreshments.

The key is a handsome silver-gilt one with quatrefoil head, having in the centre the arms of the County Borough of Bolton in correct heraldic colours, and round the border the words "Bolton Technical School." Surmounting the head of the key there is the crest of the recipient. On the reverse of the head are the words "Presented to Ald. Dobson, J.P., on the occasion of his opening the County Borough of Bolton Technical School, March 19th, 1892," this inscription being given on a shield. On the reverse of the Borough Arms an interlaced border of various technological symbols or tools are introduced. The key was enclosed in a handsome velvet case.

ROUMANIA AND HER TARIFF.

That which big States do little ones are often compelled to imitate. The commercial treaty iconoclasts of France and other countries have therefore had their imitators in Roumania. Our Consul at Galatz writes:

In July of 1891 the whole of the commercial treaties between Roumania and foreign countries which contained any tariff stipulations came to an end, and none of these have been renewed, so that imports from all countries now stand on the same footing, and are subject to the general tariff. The general tariff has, however, been very considerably modified, and is now of a much more moderate character than that which was in force prior to this change. The Government retain the power to increase the dues, even up to a prohibitive point, for the whole or any part of the goods or produce imported from countries where exaggerated or prohibitive duties are levied on Roumanian goods or produce, but the tariff as it stands can scarcely be characterised as protective on the whole, the duty on some articles having been reduced below the point at which it had been fixed by the commercial treaties. The duty for instance has been reduced from 15 fr. to 8 fr. per 100 kilos. on grey cotton twist, which is one of the chief articles of British import. But protective duties are imposed on all articles which are made or produced in Roumania, as a legislative complement of the law for encouraging national industries; and as the greater part of these productions are as yet of a very ordinary character, there are many instances of an infinitely higher duty, relatively speaking, being imposed on the common and coarse article than on the superior and more highly finished one in the same class of goods.

The principal articles of British import which are most likely to be affected by this change in the tariff are woollen tissues, the coarser cotton tissues, felt hats and carpets, etc., while in several instances a good deal will depend on the article in the tariff under which certain goods are classed, as in the case of "doubled yarns," which, if classed as "cotton trimmings," are liable to a duty of 120 fr. per 100 kilos.

Irrespective of the effect of the tariff itself the fact that the general tariff is now applied to all countries admits Austrian trade into competition on equal terms, a position from which that trade has been shut out since the latter half of 1886, when, negotiations having failed for the renewal of a commercial treaty, imports

from Austria were subjected to the general tariff as it existed at that time, that is to say, to far higher rates of duty in most cases than were levied on imports from countries having commercial treaties.

The certainty that higher rates would be imposed on some articles after July 10th, and the uncertainty as to the classification of other articles after that date, led to a large increase in the imports in the first months of 1891. The official statistics show that up to the end of July the imports amounted to 420,000 tons, of an estimated value of £12,300,000, whereas for the whole year 1890 they only amounted to 554,000 tons, of an estimated value of £14,500,000. The imports under the head of textiles for these seven months are returned at 20,600 tons, valued at £6,050,000, while the returns for the whole year '890 give only 20,630 tons, valued at £6,200,000, under this head. The articles of which the largest stocks appear to have been laid in are woollen tissues, of which the imports during the seven months were equal to that of the whole year 1890: cotton tissues, of which the quantity imported was even larger, and felt goods, about double the amount imported during the whole of the previous year. There has been a fair amount of business in Manchester goods, more especially in Moldavia, and the bulk of the cotton goods have been imported from England.

It is highly desirable that our trade should be kept well up and wherever possible be increased with the smaller countries of Europe, such as these Eastern States, for it is there least competition is to be found.

ANOTHER STRIKE.

(FROM "THE YORKSHIREMAN.")

A correspondent, whose name we would not divulge for the world, has favoured us with the following report of a scene that actually occurred in connection with a certain strike in a certain place that shall be as nameless as our informant:—

The proprietor of a large business was seated in his office, when a deputation of his workmen entered.

"We've come to lay our views before you, sir," said the chief spokesman, "before proceeding to enforce them by striking."

"All right; fire away."

"We intend to work only forty-four hours per week in future."

"At what pay?"

"Oh, the same, of course; we'll do just as much work."

"Very well; go on."

"Then the manager doesn't altogether suit us. We want him to be dismissed."

"Anything else?"

"Well, considering the nature of the work, we think we ought to be allowed a little light refreshment in the middle of each afternoon."

"Certainly; proceed."

"And we have come to the conclusion that it would be detrimental to our interests for you to set on any new hands at any time until we have certified that we are willing to work with them."

"Yes; anything else?"

"And that each man ought to have a fortnight's holiday and double pay once a year."

"Exactly; what more?"

"That is all, sir, at present."

"No, it isn't. Think again. I'm sure there's something else."

"No, sir."

"Well, I'll just tell you, then. You've arranged your hours of work?"

"Yes, sir."

"You've managed to have the manager dismissed?"

"Yes, sir."

"And the refreshments, and the holidays, and the other matters you've mentioned?"

"Yes, sir."

"But you've forgot one thing, and that is to arrange to get some d— fool to pay your wages on a Saturday, for I won't. Good morning."

U.S. DUTIES ON JUTE FABRICS.—The Board of General Appraisers have rendered a decision of considerable interest to importers of jute fabrics. It was on an appeal against the ruling of the Collector on an importation, on which he had assessed duty at 50 per cent. *ad valorem*, under paragraph 371 of the new Act. The merchandise in question is a twilled cloth, 25 inches wide, composed of linen warp and bleached jute weft. Its chief use is in making salt bags, and it is known in commerce as salt sacking, salt bagging, and crash. The Act of 1883 and previous Acts made separate sections for burlaps and crash, but the Act of 1890 does not so distinguish between them. The appellants claimed that the merchandise is burlaps, less than 60 inches in width, not suitable for bagging for cotton, and is dutiable at 1½ cents per lb. under paragraph 364 of said Act. There being no specific provision for crash in the present Act, the merchandise

was classified by the Collector as a manufacture of which flax is the component material of chief value, containing less than 100 threads to the square inch, counting both warping and filling—duty 50 per cent. The findings of the General Appraisers were as follows:—That the merchandise is not known to commerce as "burlaps," but as "crash," and that it is not denominatedly provided for in the present Act; that it is composed of flax and jute, and that flax is the component material of chief value; that it contains less than 100 threads to the square inch, counting both warp and filling, and has a twilled weft, whereas burlaps have only a single weft and warp; that the Collector's assessment—50 per cent.—be affirmed.

At Bogorodsk, in Russia, the wool-spinning factory of Salpin has been destroyed by fire, the damage being reckoned at 1,000,000 roubles.

The firm of Lederer and Wolf, in Dorfel, near Reichenberg, propose to enlarge their shed.

It is stated that a branch of industry which has been successfully prosecuted in Germany and England is about to be represented by a large factory in Koubaix, namely the manufacture of cotton velvet and figured silk, for ladies' mantles, covers of boxes, etc. The factory will employ 300 hands, who will at first be employed only in the cutting of velvet, dyeing, and finishing.

Textile Markets.

COTTON.

MANCHESTER, FRIDAY.

Taken generally, the cotton trade has developed no feature of improvement during the past week. A slight movement of an upward tendency has occurred in Liverpool, and has been maintained with rather more than the average amount of success hitherto accruing to such efforts. This arises from the entrance into the market of outside speculators, attracted by the abnormally low prices to which cotton has gone down. These belong to the class of speculators who are ready to descend upon any market or upon any article that presents sufficient attraction of this character, and in which they can invest their money for a term without risk of natural deterioration accruing in the article upon which they place it. So far as commercial deterioration is concerned, they expect when they touch the article that it has gone as far as it is likely to extend. The improved aspect of Liverpool is therefore entirely owing to the operations of this class of persons, and certainly not to any improved demand either from spinners, manufacturers, or merchants. The result has been that they have caused an advance of $\frac{1}{8}$ d. in spot values, and this has been reflected in futures, in which there has been more buying, and a consequent advance in prices. Help of this kind is what Liverpool has been anxiously desiring for some time, in the hope that spinners might be scared into a belief that prices were going upwards, and that they must now make very extensive purchases. So far these hopes and desires do not appear to have been realised, as of spot cottons the trade continues to take a very small supply. In the other aspects of our market there is no improvement to relate. There is rather less heard just now of the aggressiveness and harassing conduct of the operatives than for some time past. They are, however, still maintaining two most causeless disputes, both in connection with joint-stock companies, one in South and the other in East Lancashire. There are signs at last at one of these that they are getting tired of their folly, and it is possible that they may soon acknowledge their defeat and return to work.

COTTON.—On Saturday the market opened quietly, but subsequently improved in tone. It was characterised, as of late, by speculators' operations in spot cotton, bought for investment. This is a feature that is helping to sustain spot prices. Other growths were dull, and Egyptian was irregular. Futures opened at a decline, but quickly recovered, and closed at an advance of $1\frac{1}{2}$ to $2\frac{1}{2}$ points on the several positions. The improvement thus indicated made further progress on Monday. Futures were somewhat excited and ran up 5 to $5\frac{1}{2}$ points; but subsequently a relapse set in and half the advance was lost. The continued free buying of spot cotton by speculators imparted additional tone, and prices were advanced $\frac{1}{8}$ d. Other growths were unchanged. On Tuesday there was a continuance of the above features, though the rate of progress was decidedly reduced. The market obtained its chief strength from the action of speculators in buying spot cottons. The trade, however, showed no intention of changing its disposition, confining its operations to immediate requirements. Spots were fully maintained in value. Other growths continued dull and neglected. Futures fluctuated within a range of 2 or 3 points, and finally closed with a gain of 1 point. On Wednesday, owing to the diminished receipts, the upward movement continued. Futures fluctuated in an upward

direction, advancing at one time 3 to 4 points, but ultimately closing with an advance of $1\frac{1}{2}$ to 2 points only. Spots were again bought pretty freely for investment, and advanced prices were paid. Other growths were dull and unaltered in price. Yesterday the upward movement in Liverpool gave distinct signs of having run its course. One of its two chief stimulants was the decline in the receipts, which really must occur sometime unless the cotton fields have begun to yield cotton not only spontaneously but all the year round as well. We have previously pointed out the fact that cotton is not consumed because it has been transferred from the plantations or the interior towns to the ports, and New York and Liverpool, and that therefore the falling off in the receipts is no justification at this time of the season for any attempt to advance prices. Spot cotton, however, continued in fairly good demand on speculative account, but sellers were content to accept lower prices by $\frac{1}{8}$ d. Brazilian was in slow request, and prices were reduced $\frac{1}{8}$ d. For Egyptian there was a moderate demand, yet holders offered so freely that the official rates were reduced $\frac{1}{8}$ d., representing the decline upon the week. Futures opened dull, and steadily declined until the close, when the record showed a loss of four points, showing that the movement after about a week's run had once more spent all its strength.

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	60,699	56,434	68,410	1,477,790	7,788
Brazilian	6,506	1,028	230	50,910	—
Egyptian	13,094	7,125	3,400	137,760	450
West Indian	2,714	766	660	32,066	65
East Indian	5,977	2,613	1,210	42,190	567

Total .. 88,990 .. 67,966 .. 65,910 .. 1,740,710 .. 8,870
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):—

	Satur-day.	Mon-day.	Tues-day.	Wednes-day.	Thurs-day.	Friday.
March	3-34 v	3-30 b	3-30 b	3-40 41	3-37 38	3-30 3
Mar-April	3-34 v	3-30 b	3-30 b	3-40 41	3-37 38	3-30 3
April-May	3-34 35	3-30 40	3-30 30	3-41 v	3-38 v	3-30 40
May-June	3-37 38	3-41 v	3-41 v	3-43 44	3-41 v	3-47 43
June-July	3-40 41	3-45 v	3-44 v	3-46 47	3-44 v	3-45 46
July-Aug.	3-43 44	3-48 v	3-47 v	3-49 50	3-47 v	3-48 49
Aug. Sept.	3-46 47	3-51 v	3-50 v	3-54 53	3-50 v	3-51 52
September	3-49 50	3-54 v	3-52 53	3-55 v	3-52 53	3-54 v
Sept.-Oct.	3-49 50	3-54 v	3-52 53	3-55 v	3-52 53	3-54 v
Oct.-Nov.	3-52 v	3-56 57	3-55 v	3-57 58	3-55 v	3-56 57
Nov.-Dec.	3-54 55	3-59 v	3-57 58	3-60 v	3-57 58	—
Dec.-Jan.	—	3-62 v	—	—	—	—

	Satur-day.	Mon-day.	Tues-day.	Wednes-day.	Thurs-day.	Friday.
Price of Mid. American.	39-16	3%	3%	3%	3%	3%
Estimated Sales including Spec. and Export.	7,000 2,000	10,000 2,500	10,000 3,000	12,000 5,000	10,000 3,000	10,000 3,000

The following are the official quotations of the Liverpool Cotton Association:—

	G.O.	L.M.	Md.	G.M.	M.F.
American	3 $\frac{1}{8}$	3 $\frac{1}{8}$	3 $\frac{1}{8}$	3 $\frac{1}{8}$	4 $\frac{1}{8}$
Ceara	3 $\frac{1}{8}$	3 $\frac{1}{8}$	3 $\frac{1}{8}$	3 $\frac{1}{8}$	4 $\frac{1}{8}$
Paraiba	3 $\frac{1}{8}$	3 $\frac{1}{8}$	3 $\frac{1}{8}$	3 $\frac{1}{8}$	4 $\frac{1}{8}$
Maranhao	3 $\frac{1}{8}$	3 $\frac{1}{8}$	3 $\frac{1}{8}$	3 $\frac{1}{8}$	4 $\frac{1}{8}$
Egyptian	4 $\frac{1}{8}$	4 $\frac{1}{8}$	4 $\frac{1}{8}$	4 $\frac{1}{8}$	4 $\frac{1}{8}$
Ditto white	4 $\frac{1}{8}$	4 $\frac{1}{8}$	4 $\frac{1}{8}$	4 $\frac{1}{8}$	4 $\frac{1}{8}$
M.G. Broach	—	—	—	—	—
Dholerah	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	3 $\frac{1}{8}$	3 $\frac{1}{8}$
Oomra	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	3 $\frac{1}{8}$	3 $\frac{1}{8}$
Bengal	—	—	—	2 $\frac{1}{2}$	3 $\frac{1}{8}$
Tinnivelly	3 $\frac{1}{8}$	3 $\frac{1}{8}$	3 $\frac{1}{8}$	3 $\frac{1}{8}$	3 $\frac{1}{8}$

YARN.—Last week's results in the yarn market were very unsatisfactory to producers. The turn-over was not equal to production, and prices were all round very unsatisfactory. Saturday showed no improvement. The improvement in Liverpool on Monday produced very little effect in the yarn market, neither home nor export department giving out any increase of orders, or even swelling the enquiries to any material extent. On Tuesday prices of yarns were perhaps a little more regular, but there was hardly any increase in the volume of business actually passing, though on the part of producers a firmer feeling was beginning to manifest itself. On Wednesday the growth of this feeling was more manifest, and buyers increased their enquiries to some extent. There was, too, a resumption of enquiry

on Japan account, which had been suspended for a week or more, owing to fluctuations in the exchange. The aggregate of the day's sales in nearly every department was an improvement upon those of a week or two past. Prices, however, showed no advance upon those obtained on Friday last. Yesterday there was no change for the better in yarns. Any tendency towards improvement that had arisen was more than counteracted by the fall in the exchanges. There was a moderate enquiry for two folds for Japan, but here too the exchange difficulty blocked the way of business.

CLOTH.—Saturday's cloth market revealed no change from the slow demand of last week, the transactions of which were not equal to the production. Only a very limited enquiry could be found in any department, though, as usual, not much effort was made to find anything. On Monday there was no new development in the cloth department, buyers not deriving any stimulant from Liverpool, and manufacturers continuing to quote late rates. On Tuesday the improvement in Liverpool was fully counteracted by the decline in the exchanges, which certainly neutralised all the benefit producers might have expected to flow from it. There was a general absence of demand for shirtings of all kinds, and in mulls, jaconets, and dhooties, though enquiry was to be met with, prices were rarely practicable. Printing cloths were very slow. The enquiry for miscellaneous was, as usual of late, somewhat below a moderate average. Manufacturers, however, generally speaking, have a fair supply of orders in hand, and consequently are not urgent sellers. On Wednesday transactions in cloth, for which there was a slightly increased enquiry, were hampered by the disturbance in the exchanges, otherwise an increased business would probably have been put through. The enquiry for cloth yesterday showed no improvement in prices. There was a fairly general demand in the different sections of the market, but everywhere the slightest impediment coming in the way was sufficient to preclude business.

To-day cotton is rather firm, yarn remains exceedingly quiet, and cloth is unchanged.

WOOLLENS AND WORSTEDS.

ROCHDALE.—Season orders for flannels have been placed in moderate quantity, but manufacturers are said to be dissatisfied with the rates paid, and are holding back. The statement is also repeated that stocks in the hands of distributors are low.

BRADFORD.—Small wools have been brisker of late, but trade generally is dull. 60's merino tops are also slow. Purchases of mohair and alpaca have for some time been quiet, spinners being very shy. Yarns unchanged, both the home and shipping demand being slow. There is too much machinery standing, notwithstanding the concessions which spinners offer frequently. Mohair and alpaca yarns are slow. Piece goods also are quiet, and spring prospects for fancies are not cheering.

GLASGOW.—Messrs Ramsey and Co., wool brokers, in their report, dated 22nd March, say:—*Wool:* There is no new feature in the wool market this week; business continues to drag along slowly, and without animation. A series of public sales are being held in Leith; to-day and to-morrow we hold our public sales here. Prices are weak, without quotable change. *Sheepskins:* The supply has been rather short, generally of good qualities, which meet only a slow trade, with rather irregular prices.

FLAX AND JUTE.

DUNDEE, WEDNESDAY.—The market is still depressed. *Jute* is nominally unchanged in price, but some holders are willing to secure their profit and sell parcels considerably under market quotations. Still the figures remain unchanged. A shortage of a million bales on an importation last year of 2,600,000 is a fact there is no getting over. Some holders, therefore, confident in this, refuse to concede anything, and remain quite firm, assuring themselves that later on they will be masters of the situation. Yarns are all lower in price, quite $\frac{1}{2}$ per lb. on the week, especially the common kinds. But it requires thorough knowledge of the local trade to read some of the list prices issued. For example, common cops, 8 lb., sold a few weeks ago at 1s. 10 $\frac{1}{2}$ d., are done to-day at 1s. 7 $\frac{1}{2}$ d., but it is also true that for 8 lb., the same weight of yarn of the finest quality, 2s. is refused. So with Hessians; they are very depressed, and ordinary Dundee goods are quoted at 2 1-12d. for 10 $\frac{1}{2}$ oz. 40in., while it is also true that there are buyers at 2 5-12d. for the very same weight and porter. The difference in quality makes the difference in price. Still in the face of this depression one hears on every hand of machines being stopped and of still further curtailment of the working week. Heavy goods are specially dull owing to sales by Calcutta, which do not do more than cover the price now asked for the raw jute. *Flax* is

not quite as firm. The fluctuations in the Exchange enable sellers from day to day to quote a slightly lower sterling price. For K the nominal quotation is from £17 10s. to £18 10s., according to district and shipper. Flax yarns are hardly as strong, except for the best warps. They are firmly held. Tows also are less enquired for, owing no doubt to the larger buyers having supplied themselves a few weeks ago. The Dundee fancy jute trade is quiet, and irregular prices are quoted. The sharp rise in jute is now telling on the makers, who must buy. Abroath continues very quiet, and the demand for *caracas* is unequal to the production. In lines there still continues an excellent demand. Forfarshire and Fifeshire, both in the heavy and fancy departments of the linen trade, being well engaged.

HOSIERY AND LACE.

NOTTINGHAM.—The lace trade has been more active of late, although complaints are not infrequently heard as to the character of the demand. Curtains and vitrage nets have been steady, and some of the novelties in the former goods have had a fair run. Fine and medium bobbin nets keep steady. Mosquitos are slow, and the same may be said of Paris and Paisley nets. Mechlins, Brussels, and zephyrs are dull. Silk tulle is also quiet. Silk veilings have been in more active request. For cotton millinery lace the demand is steady. The hosiery trade displays no feature of special interest. The demand is with many disappointing, although some houses have had a fair enquiry.

LEICESTER.—The demand for wool is fair, although no change in quotations can be recorded. Low spring wools are slow, but where holders are prepared to meet buyers with a slight reduction business results. Lambs' wool can only be secured at an advance, the supplies being small and very strongly held. Half-bred wools are also a shade dearer. The yarn market is more active, and spinners are compelled to seek higher prices for new contracts, although the upward movement meets with strong resistance. Lambs' wool and Cashmere yarns are in better demand at firm prices, but cottons are a slow sale. The hosiery trade is fairly active all round, while some branches are very fully engaged on contracts, both for home and export. The American orders are almost exclusively confined to fabrics of a costly character, the production of which involves a great deal of manipulation. Elastic web fabrics are in steady demand.

DRY GOODS.

MANCHESTER.—In the lace departments this week there has been a decidedly brisker movement, some buyers having, to use their own language, been swamped with orders. It now appears that there is to be a really good lace season, if present indications are anything to go by. The change is welcomed by all concerned who have had such a poor time of it for some seasons past. The home trade demand for cotton goods has suffered owing to the disturbances in the coal districts. Woollens are also slow.

Joint Stock and Financial News.

NEW COMPANIES.

PICKLES, SMITHSON AND PICKLES, LIMITED.
Capital, £60,000 in £10 shares. Object, to acquire the lands, works, goodwill, etc., of the undertaking of Pickles, Smithson and Pickles, now carried on at Ravensthorpe and Dewsbury, and generally to carry on business as dyers, and as dyestuffs, and manufacturers of dyes, chemical substances, etc., used in the said businesses. Subscribers:—
C. Smithson, Heckmondwike 1
A. Neil, South-view, Horbury, near Wakefield 1
G. Milner, Spin Villa, Ravensthorpe 1
R. J. Smithson, Heckmondwike 1
A. Pickles, Oak House, Heckmondwike 1
E. Pickles, Oak House, Heckmondwike 1
F. A. Kelly, 29, Collegiate-crescent, Sheffield 1
The first directors are T. J. Pickles, S. Smithson, and C. H. Pickles. Qualification, 50 shares. Remuneration of first directors, £600 per annum each, remuneration of ordinary directors to be fixed by the company.

LONDON FABRIC-PRINTING COMPANY, LIMITED.
Capital, £40,000 in £1 shares. Object, to carry into effect an agreement made between J. L. Hindle of the first part, W. G. White and K. A. A. White of the second part, W. E. White of the third part, and C. O. Greenwell of the fourth part, for the acquisition of certain letters patent relating to printing in colours, and the general undertaking of a printer of textile

fabrics, now carried on at 278, Lower Deptford-road.

Subscribers:—
A. H. S. Daniell, Arlington House, Uxbridge-road, W. 1
O. Friederici, 58, Lombard-street, E.C. 1
W. H. Ball, 60, Conyer-road, S.W. 1
E. C. F. Dawson, 1, Margaret-street, Cavendish-square, W. 1
E. E. Strong, 22, Marsden-road, East Dulwich 1
A. H. Portch, 7, Fenwick-road, East Dulwich 1
E. F. Weldon, 16, St. Helens-place, E.C. 1
The first directors are Colonel J. Evans, H. G. Henderson, J. L. Hindle, E. J. Morton, and W. H. Smith. Qualification, 500 shares. Remuneration, £1,000, divisible.

MILLBROOK SPINNING CO., LIMITED, STALYBRIDGE.
Capital, £60,000 in £10 shares. Object, to acquire the undertaking hitherto carried on under the style of the Millbrook Spinning Company, and generally to carry on business as spinners and doublers, dyers and bleachers, etc. Subscribers:—
S. Smith, Carleton, Prince's Park, Liverpool 1
E. E. Edwards, Ullett Grange, Sifton Park, Liverpool 1
J. Smith, Dalmorton House, New Brighton 1
W. S. Lowe, Oakwood House, Staly, Stalybridge 1
J. G. Smith, Carleton, Prince's Park, Liverpool 1
A. E. Edwards, Ullett Grange, Sifton Park, Liverpool 1
J. G. Lowe, Sunny Bank, Staly, Stalybridge 1
R. L. Rees, 4, Chapel-street, Liverpool 1

The first directors are the first four signatories to the memorandum of association. Qualification, £5,000; qualification of subsequent governing directors, £2,000; qualification of ordinary directors, £500. Remuneration to be determined.

ROBERT HALL AND SON, LIMITED, HYDE.

Capital, £50,000 in £10 shares. Object, to acquire the whole or any part of the lands, mills, factories, warehouses, buildings, water powers, etc., now in the occupation of Joshua Hall, at Hyde; the goodwill, trade marks, patent rights, machinery, plant, stock in trade, goods, raw materials, book debts, contracts, and property of every kind, belonging to the said business; to carry on the business of spinners, doublers, dyers, leathers, finishers, manufacturers, printers, and dealers in textile goods of every description, etc. Subscribers:—
J. Hall, Kingston House, Hyde 1
H. Hall, Kingston House, Hyde 1
A. H. Hall, Acres House, Hyde 1
Joshua Hall, Kingston House, Hyde 1
J. H. Hall, Kingston House, Hyde 1
R. Hall, 234, Manchester-road, Hyde 1
H. H. Clayton, 74, Great Norbury-street, Hyde 1

A. H. Hall and J. H. Hall, manager and under-manager respectively, shall be the directors of the company, and shall vacate office on the agreement being carried out; Joshua Hall shall be the permanent governing director; on the death of the said Joshua Hall, Allan H. Hall shall be permanent director so long as he is the holder of 120 shares. Qualification of ordinary directors, £1,000. Remuneration: Permanent governing director, £500; ordinary directors' remuneration to be determined; remuneration of the managing director (A. H. Hall) to be fixed by the company.

IRWELL BANK SPINNING COMPANY, LIMITED.

Capital, £120,000 in £10 shares. Object, to carry into effect an agreement made between J. Baxter of the one part and E. Roberts (on behalf of this company) of the other part, for the acquisition of a plot of land at Stoneclough, Lancashire, adjoining the Prestolee Mills, with the water rights belonging thereto and the buildings thereon, and to carry on the businesses of cotton spinners, manufacturers, cotton brokers, yarn and cloth agents and salesmen, dyers, furnishers, bleachers, calico printers, merchants, doublers, and cotton waste dealers, and to deal in cotton, wool, silk, flax, jute, and other fibrous materials, etc. Subscribers:—
J. Baxter, 14, Talbot-street, Southport 1
G. Chatton, Little Lever, Bolton 1
F. Denton, 16, Hope-road, Sale, Manchester 1
A. Wood, 18, Langley-road, Pendlebury 1
C. B. Grover, Worsley 1
T. Coombs, Bramley, Leeds 1
F. Wilkinson, Rochdale 1

The first directors are A. Wood, J. Baxter, G. Chatton, and F. Denton. Qualification, £1,000. Remuneration, £300, to be divided.

COTTON BROTHERS COMPANY, LIMITED, BLACKBURN.

Capital, £1,500 in £100 shares. Object, to carry into effect an agreement made between R. R. Jackson of the one part and J. Ormerod, on behalf of this

company, of the other part; to acquire, in consideration of yearly rent, a mill known as Appleby-street Mill, Blackburn, and to carry on thereat the business of cotton-cloth manufacturers in all its branches. Registered without articles of association.

Gazette News.

PARTNERSHIPS DISSOLVED.

D. Kennedy, jun., and G. R. Murdoch, Liverpool, cotton brokers; as regards G. R. Murdoch.
W. Bell and G. Goodall, Bradford, stuff dealers; as regards G. Goodall.
W. S. Christian and E. B. Haigh, Liverpool, cotton brokers; as regards W. S. Christian.
J. and G. S. Sagar, Halifax, hosiery manufacturers; as regards J. Sagar.
M. M. S. Ades and A. J. Tabbush, Manchester and Cairo, merchants; as regards A. J. Tabbush.
Sharples and Birtwistle, Blackburn, cotton manufacturers.

Patents.

NOTICE OF REMOVAL AND CHANGE OF FIRM.

E. K. DUTTON & CO.

(Late DUTTON & FULTON).
CHARTERED PATENT AGENTS
Removed from 1, ST. JAMES'S SQUARE, to QUEEN'S CHAMBERS, 5, John Dalton St., MANCHESTER.

SPECIFICATIONS PUBLISHED.

Each of the following Specifications may be purchased at the Sale Branch, 38, Cursitor-street, London, for the price of 8d., or may be ordered on the Postal Request, price 8d., which is now on sale at all the principal Post Offices in the United Kingdom.

- 1891.
- 3,138 PAULICK. Jacquard machines.
- 3,270 FISCHESSE. Azo colouring matters.
- 3,696 CROKER. Carding, combing, etc.
- 4,177 WATSON. Purifying water, dye, etc.
- 4,674 BROWNELL. Twisting engines.
- 6,988 ASHWORTH, G. and E. Carding engines.
- 7,073 HARRISON, W. and C. W. Knitting machines.
- 7,136 KNOWLES. Carding engines.
- 8,195 WHITAKER and BROTHERTON. Combing wool.
- 10,242 PICKWORTH. Ring, etc., frames.
- 17,330 BEDFORD. Looms.
- 1892.
- 1,295 BROWN. Carriage-lace, upholstery, etc.
- 1,344 LOWE. Curtains.
- 1,581 FELL (Avery). Looms.
- SECOND EDITION.
- 4,507* 1880. ASHWORTH, G. and E. Carding engines.

ABSTRACTS OF SPECIFICATIONS.

15,117. Sept. 24, 1890. Knitting. C. A. ROSCHER, Mittweida, near Chemnitz, Saxony.
Circular machines.—The needles slide in grooves on the interior of the rotating cylinder to allow the work to pass down on the outside.

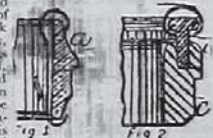
Regulating length of loop.—A depressing cam is provided with an adjusting screw.
Stop-motions are provided. Drawings.

15,120. Sept. 24, 1890. Dyes. O. IMRAY, 28, Southampton Buildings, Chancery-lane, London.—(The Society of Chemical Industry in Basic, Basle, Switzerland.)

Azo-dyes.—Relates to the production of black colouring matters. Consists in combining mono-alkylated beta-naphthylamine, especially monoethyl-beta-naphthylamine, with diazo compounds obtained by combining disulphonic acids of naphthylamine, aniline, toluidine, or styline, with alpha-naphthylamine and diazotising the product.

15,134. Sept. 24, 1890. Spinning. R. A. JOHNSON, 48, Meadow-street, Moss Side, Manchester, and R. BREWSTER, Clymedale, Victoria-road, New Barnet, Hertfordshire.

Kings used in spinning and doubling frames are formed of a mixture of felspar, rock crystal, china clay, and borax, or other suitable flint. Rings made of this material are hard, will take a high polish and can be made perfectly true in form. The ring may be formed entirely of this material, in which case it is made without top flange, and the traveller engages with both the top and bottom edges of the ring, Fig. 1; or the base of the ring may be of metal, the upper or ceramic part being provided with an annular flange or web as, Fig. 3, which takes into an annular socket in the base.



15,167. Sept. 25, 1890. Dyeing. C. KNABE, Osterwieck-am-Harz, Germany.

Relates to apparatus for colouring leather skins, and like materials. *Drawings.*

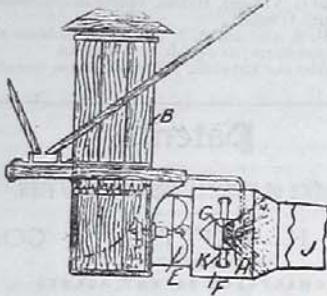
15,238. Sept. 26, 1890. **Looms.** T. W. WILSON, 39, Lupton-street, Bradford.



Shuttles are made of sheet metal, in one or more pieces, with wooden plugs B, C which are held by pins passing through the metal and which carry the tongue D, spring E, and welt eye G. Pointed tips F are forced into the wooden plugs. The blank sheets of metal are cut out by a stamping press and suitable dies.

15,240. Sept. 26, 1890. **Moistening air; ventilation.** W. MATTHEWS and J. and W. YATES, Todd-street Works, Long Millgate, Manchester.

A ventilating fan E draws air through a casing B (represented as fixed in the roof of a weaving shed) and forces it through a



tube J, from which it may be delivered through openings in the space to be ventilated. The moistening is effected by a spray of water or steam, a jet H, of either impinging on a spray plate G, which is fixed by metal straps K to the wall of the chamber F or to an annular casing around the plate; this annular casing assists the production of fine spray. A cone may deflect the incoming current of air. By means of a door, which may be secured in a horizontal or vertical position, the air for the apparatus may be drawn from the room or from outside as desired.

15,245. Sept. 27, 1890. **Dyes.** B. WILCOX, 47, Lincoln's Inn Fields, Middlesex.—(Patentfabriken vorm. F. Bayer and Co., Elberfeld.)

Relates to the manufacture of new blue colouring matters with a greenish tinge from the "new Blue R" of commerce. Consists in acting upon a paste of new blue R and alcohol with an alcoholic solution of ammonia until free ammonia has disappeared, and then oxidizing the product by passing a current of air through the liquid until the colour ceases to be intensified. Or a current of air may be passed through a concentrated solution of ammonia and then through an alcoholic solution of

the new blue R, thus dispensing with subsequent oxidation. After distilling off the alcohol the colouring matter is salted out.

15,346. Sept. 27, 1890. **Dyes, etc.** S. PIRN, Sutton, Surrey.—(L. G. G. and Co., Frankfurt-am-Main, Germany.)

Relates to the preparation of diamido-naphthalene-alpha-and-keta-disulphonic acids, and of azo dyes therefrom.

Sulphonic acids.—Naphthalene disulphonic acid is first converted into dinitro-naphthalene disulphonic acid by the action of a mixture of sulphuric and nitric acids, and the melt after dilution is treated with concentrated sea-water, whereby the sodium salt of the alpha-acid is separated from the hot liquid as small crystals. The beta-acid is separated from the filtrate by addition of common salt. The separated or mixed dinitro acids are reduced to the corresponding diamido acids by means of iron and acetic acid. The mixed diamido acids may be separated by precipitating the diamido beta-acid by saturating the mixed solutions with common salt, and precipitating the diamido alpha-acid from the filtrate with hydrochloric acid. Naphthalene beta-disulphonic acid of lime, mononitronaphthalene beta-disulphonic acid of sodium, or corresponding alpha-compounds, may also be used as starting points. The beta-acid only yields a tetrazo compound.

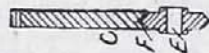
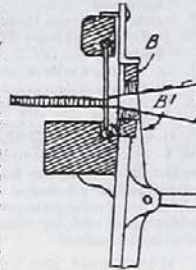
Azo dyes.—The tetrazo derivation of diamido-naphthalene beta-disulphonic acid is combined with alpha- or beta-naphthylamine, or a sulpho acid thereof, whereby bluish red to yellowish red colouring matters free to acids are obtained. Or the tetrazo-compound may be combined with phenols or salicylic acid, and the product may be alkylated. Chrysidine, and bismarck brown yield deep brown substantive dyes. Azo dyes are obtained from the diamido alpha-acid by combining it in molecular proportions with tetradiphenyl and reacting with the intermediate product upon beta-naphthylamine or Bromer's sulpho acid thereof.

15,351. Sept. 27, 1890. **Looms.** H. H. LAKE, 45, Southampton Buildings, Middlesex.—(Eisack and Hatry; Saargemund, Lothringen, Germany.)

In looms for weaving spun silk (as in the manufacture of velvet) brushes B, B₁ are employed behind the reed for clearing the yarn from fluff. The brush B₁ is fixed to the lay, whilst the brush B lies loosely and presses on the upper warp and pile, and is adapted to have an up and down motion.

15,359. Sept. 20, 1890. **Looms.** W. CROWTHER, Spring-terrace, Binn-road, Marsden, near Huddersfield.

Shedding and change-box motions.—The jack-levers C are



grooved, as at F, to correspond with V-projections on the bowls E of the pattern chain. The invention may be modified.

15,421. Sept. 30, 1890. **Spinning.** E. AUFRECHTLER, of the Societe Anonyme Filature et Fileries Reunies, Alost, Belgium.

Carding-engines.—In order that the card teeth near the edge of the cylinder may have sufficient rigidity to enable them to be properly ground in the usual manner, the foundation of the card

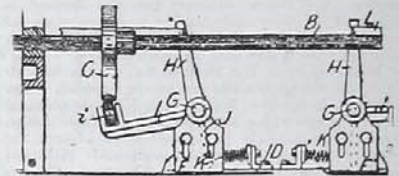
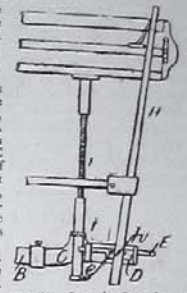
fillet is increased in thickness at those parts which will form the end coils when wound on to the cylinder. For a similar reason the card fillet secured to the flat is strengthened by a band of leather, artificial leather, or other suitable material, preferably thicker in the middle than at the edges, and applied between the usual foundation and the base of the card teeth or between the folds of the foundation. *Drawings.*

15,477. Sept. 30, 1890. [Date given under SEC. 101 of the PATENTS, etc., ACT, 1887, March 3, 1890.] **Looms.** J. A. TUCKER, 115, Rhodes-street, Rhode Island, U.S.A.

Picking-sticks, checking.—The picking stick H is pivoted to the piece E by means of the pin A, which is adjustable in the slot z. The piece E slides in bearings in the extension D of the bracket C on the lay shaft B. At the back of the piece E is a projection against which bears an adjustable spring, which presses the piece E outwards. The spring relieves the shock both when the shuttle is received and when it is started.

15,481. Sept. 30, 1890. **Looms.** H. H. LAKE, 45, Southampton Buildings, Middlesex.—(G. F. Butlerfield; Hale, Langwood, Woodland-road, Stincham, Massachusetts, U.S.A.)

Picking-motion.—Shafts G are mounted in bearings in adjustable plates F, which are carried by the vertical flanges of a base plate D. An arm H on each shaft is connected by the strap L to the usual picking stick. Another arm I carries a bowl J against which acts the cam C on the main shaft-B. A wing J, or



a set of short arms, acted on by springs K, is also provided. As the cam revolves the springs are compressed until the bowl J escapes from the nose of the cam, whereupon the springs cause the rapid reversal of the motion of the arm H, for picking. The arm I is placed slightly in front of the shaft B.

PATENTS.
W. P. THOMPSON & CO.
Agents for procuring Patents and Registering
Trade Marks and Designs.
6, Bank St. (Exchange), Manchester.
6, Lord St., LIVERPOOL; and 323, High Holborn, LONDON.
Largest Patent Agency in Great Britain.
"Facts for Inventors" (Pamphlet sent free on application)

INDEX TO ADVERTISERS' NAMES.

When the number of the page is not given the Advertisement does not appear this week.

Adley, Tolkien, and Co., Blackburn	Hall, Robert, and Sons, Bury xiii.	Platt Brothers and Co., Ltd., Oldham
Arnfield, J. & E., New Mills, Stockport	Harrison, W., Manchester i.	Reddaway, F., and Co., Pendleton Cover i.
Ayrton, Wm., & Co., Longsight, Manchester	Hart, Thomas, Blackburn vii.	Richards, Geo., and Co., Broadheath ix.
Bothel, J., Manchester	Hetherington, John, & Sons, Ltd., Manchester iv.	Riley, J. H. and Co., Bury
Blackman Ventilating Co., Limited 217	Horrocks, John, and Son, Manchester	Rosendale Belting Co., Manchester
Blezard, James, and Sons, Burnley	Howard and Bullough, Ltd., Acorington x.	Bothwell, W. and Co., Limited, Bolton
Bridge, Lang, Acorington	Howorth, Jas., and Co., Farnworth	Rushton, E. & Son, Blackburn and Manchester
Broadbent, Thomas & Sons, Huddersfield iii.	Hoyle, E., and Sons, Limited, Halifax	Salisbury and Hamer, Blackburn and Manchester xii.
Bromley, Thos., Bolton	Hurst, Wm. & Co., Rochdale	Sampson and Co., Stroud
Brooks & Doxey, Manchester xi.	Hutehinson, Hollingworth and Co., Ltd., Dobcross, near Oldham	Shaw, Wright, Stockport
Butterworth and Dickinson, Burnley	Jagger E., and Co., Oldham	Singer Manufacturing Co., London 217
Coulthard, T., and Co., Preston	Jarman and Son, Huddersfield xiv.	Stott, J. H., Rochdale xv.
Crowley & Co., Ltd., Sheffield	Johnson, R., Manchester	Stubbs, Joseph, Manchester
Curtis, Sons and Co., Manchester	Jones, J., Dukinfield	Sykes, John, and Sons, Huddersfield
Devoe & Co., Manchester i.	Kay, John, Rochdale xii.	Sykes, Joseph, Brothers, Huddersfield v.
Dickinson Wm. and Sons, Blackburn ix.	Kenyon, Wm., & Sons, Dukinfield	Tattersall and Holdsworth, Burnley
Dixon, John, & Sons, Steeton, nr. Keighley	Klauder-Weldon Dyeing Machine Co., Huddersfield xiv.	Taylor, Lang, and Co., Ltd., Stalybridge vi.
Dobson & Barlow, Ltd., Bolton ii.	Lancaster and Tonge, Pendleton i.	Thomas, Geo., & Co., Manchester i.
Dowson, Taylor & Co., Ltd., Manchester and London	Lees, Asa, and Co., Limited, Oldham	Thompson, W. P., and Co., Manchester 234
Dronfield Brothers, Oldham xii.	Livesey, Henry, Limited, Blackburn xvii.	Threlfall, Rd., Bolton
Dutton, E. K. & Co., Manchester 233	Lockwood & Keighley, Huddersfield	Unbreakable Pulley & Mill Gearing Co., Ltd., Manchester xvi.
Eastwood James, Manchester xvi.	Lord Brothers, Todmorden	Watson, Laidlaw, and Co., Glasgow
Eocles, John, Blackburn	Lupton Brothers, Acorington ix.	Wells, M. and Co., Manchester ix.
Ellis, Philip, Nottingham	Mason, John, Rochdale	Whiteley, John, and Sons, Halifax
Fairbairn-Naylor, Macpherson & Co., Leeds	Mather and Platt, Manchester viii.	Whiteley, Wm., and Sons, Lockwood, Huddersfield
Fernibough, J., & Sons, Stalybridge	Matthews and Yates, Limited, Manchester	Whittaker and Co., London
Fleming, Thos., Son & Co., Halifax	McGowan and Hadwen, Manchester xiv.	Wildman, T., & Sons, Caston, Lancs.
Fox and Williams, Manchester	McMurdo, James, Manchester	Wilson and Ingham, Liversedge
Galloways, Limited	Meredith-Jones, J., and Sons, Wrexham xvi.	Wilson Bros., Ltd., Cornholme, Todmorden
Gloy Manufacturing Co., London	Musgrave and Sons, Ltd., Bolton xiv.	Witter & Son, Bolton and London vii.
Goodfellow, Ben., Hyde xviii.	Nasmith, Joseph, Manchester	Woodhouse & Rawson, United, Ltd., London xv.
Greaves, W. McG., Manchester iii.	Nell, F., London	Worthington Pumping Engine Co., London and Manchester
Green, James, Blackburn	Orme, G., and Co., Oldham	
Guest and Brookes, Manchester	Parsons, Philip, Blackburn Cover i.	
Hacking and Co., Bury	Pickup, J. H., & Co., Ltd., Bury	