





300 adherents, among whom are some of the principal firms of the city, and Lyons, Marseilles, Roubaix, and Rheims are to have an organisation of the same kind. The league does not expect to check the Protectionist movement all at once, but it hopes to modify it as much as possible, and ultimately to move in the direction of Free Trade. This is rather a notable development under present conditions, but then one extreme always begets another, and this may be the beginning of the return swing of the pendulum.

#### THE MITAFIFE COTTON PLANT.

Man can do a great deal in the development of plant life and the origination of new varieties, but somehow or other it requires his continuous care and attention to preserve the fruit of his labours in these realms. Let this be intermitted, and there is a rapid return to the original form. It is not so, however, with the labours of Nature: when she develops a new variety it seems to become a permanent type. There are several illustrations of this in the cotton world. Not many years ago in Egypt the Bamia variety was found, and it proved a valuable addition to the country's wealth in this sphere. Only a few seasons ago the Mitafife variety was added to the number, and promises to be of greater value than others much longer known. "The chief feature of the past year," says our Consul at Alexandria, in a report just issued, "was the increased cultivation of a new variety of cotton plant known as Mitafife. This plant was discovered a few seasons ago at Benha, and this is the first occasion on which it has been planted on a large scale. Although its produce is not quite so good in quality as that of the Ashmouni plant, and is of shorter staple, it produces a much larger proportion of cotton to seed than any other variety. At the same time it has the advantage of being earlier, and less susceptible to atmospheric influences. The result of last year's experiment, was so encouraging that this year a still greater area has been planted with the Mitafife cotton. In the provinces of Sharkieh, Galioubich, and Menoufieh it has been almost exclusively sown, and throughout Lower Egypt, except in the province of Dakhalieh, where, probably owing to climatic conditions, it did not succeed last year, it has to a great extent taken the place of the Ashmouni and Bamia varieties, and has almost entirely supplanted the Gallini plant." This is valuable and interesting information for the cotton trade, and especially for the Bolton section. The latter will have to carefully examine the new comer to ascertain whether it can safely be accepted as a substitute for those varieties which have established a strong position in the affections of the Bolton trade owing to their special qualities. It may possibly not stand this test, and to the extent the new plant has displaced the older ones, the change may be to the disadvantage of the Bolton trade; but if so, it can only be for a season or two. The account given by the Consul, however, reads as if the new variety would be a valuable substitute for American sorts. If, therefore, it won't suit the Bolton trade, it may suit our Oldham and other South Lancashire friends admirably, and we would direct their attention to it. It may possibly be that the new plant will do much to relieve us from our almost total reliance upon the States for the main portion of our supply, which would be an unmitigated blessing in many respects. The coming Egyptian crop, which will largely consist of this cotton, ought to be carefully examined from this point of view.

#### A FRENCH LIBEL ON ENGLISH LACE.

A paragraph that we have no hesitation in describing as a malicious libel on English lace is beginning to go the rounds of the press. Here is the item in all its mendacity:—

LEAD IN LACE.—Ph. de Clairmont gives an account in *Le Moniteur de la Teinture* of a white satin dress totally ruined by its trimming with English lace. The dress had been worn but once, had then been packed into a trunk which was deposited in a damp place and exposed to emanations of hydrosulphuric acid from gas. When taken out it was found that the pattern of the lace, particularly of its tulle ground, had been printed in indelible black upon the white satin. The accident was not difficult to explain. English lace is habitually charged with sulphate of lead, which in this case had absorbed hydrogen and hydrosulphuric acid from the atmosphere, forming sulphide of lead, which had been imprinted and fixed upon the white satin, which naturally had also absorbed hydrogen and hydrosulphuric acid.

We may observe in passing that the account referred to appeared in the *Moniteur* as far back as April of last year. From this it may be safely inferred that it was first "done into English" across the Atlantic, where it has, no doubt, already served its evil end, namely, that of helping forward the sales of French laces to the detriment of English. As a matter of fact the paragraph will not bear examination. If the lace was charged with lead, then it ought to have been the lace, and not the satin, that was discoloured. Lace, however, never is charged with anything except a little starch to stiffen it: if for no better reason, then because it is impossible or next to impossible to charge such open fabrics as lace even with china clay, and lead especially could not be so used. But, on the other hand, it is a common practice to weight silks and satins; in fact, it was the *French* silk dyers who introduced the practice of weighting silk, and who to-day carry it out in the most flagrant manner. Moreover, lead is a favourite weighting material with them, and of the two—the lace and satin—the satin was the more likely to be charged. This we venture to assert really was the case, partly on the ground that the discoloration was on the satin, and partly because, as pointed out above, it is not usual to weight lace, while it is usual to weight satin. The public may, therefore, be at ease, as there is no cause for concern as regards weighted or poisonous laces; but, as they seem to relish this sort of thing, they may rest assured that another textile bogey will shortly be raised by the sensational or the envious.

#### FRENCH INFRINGEMENT OF A NOTTINGHAM DESIGN.

Not content with libelling English lace by statements such as those referred to in the preceding note, our French friends, who are so proud of boasting of their artistic taste and originality, have commenced to pirate successful Nottingham designs. Last week an action was commenced at the Birmingham assizes by Winfield and Sons, lace manufacturers, of Nottingham, against Snow Brothers, lace merchants, of London, to obtain an injunction and damages in respect of an alleged infringement of the plaintiffs' design for lace. In April of last year plaintiffs registered a design for the manufacture of Chantilly lace, and which obviated the necessity of "clipping" by hand. Shortly after the first samples were issued the plaintiffs' attention was called to certain infringements sent out by the defendants, and the present action was taken. The defendants' contention was that as the pattern had been shewn and sold to a firm on the 28th February, and was not registered until the 12th of the following month, a prior publication had taken place,

which prevented the plaintiffs claiming the registration of the design. Without going into further details we may briefly state that a verdict was given by Mr. Justice Hawkins for the plaintiffs. The defendants acted as agents for a French firm of manufacturers who had obviously imitated the design originally produced by Messrs. Winfield.

#### IS CHINA MOVING?

The *North China Herald* brings intelligence that since H. E. Chang Chih-tung has been appointed Viceroy of the Hukwang provinces he has carried over, as it were, all the projects for the establishment of new industries in Canton to Hankow, which is rapidly growing in importance. In the number of new schemes mainly of great importance, is one for the establishment of a cotton mill on the most improved English pattern, which will be built very soon on the right bank of the Yangtze, at a short distance from the south gate of the city. The construction of the buildings has begun, a part of the machinery has been landed, and an engineer, Mr. Dickinson, arrived at Wuchang some time ago to superintend the construction of the factory, which in full working order will have 20,000 spindles in operation. This and much more we are told, but in matters Celestial it is best to bear oneself in patience and not to be disappointed if all we hear should not turn out true.

#### HOW TRADES UNIONS MAKE BAD WORKMEN.

An incident has taken place in a mill in an important district which illustrates the manner in which trades unions as at present constituted and conducted, help to deteriorate the quality of English labour and to encourage lazy and incompetent workmen. At the mill in question the manager found it necessary to examine minutely the work sent down by a certain spinner, complaints having been received of his slovenly copping. He discovered amongst his yarn a very large proportion of damaged cops; these he collected and weighed, and charged the spinner the difference in value between sound and inferior cops, the whole amounting to less than a shilling. The spinner laid the blame on his piecer, and said he would leave if he were fined. The manager replied he would certainly have to pay for the damage whether he left or not. The man left his work, and the firm shortly received a communication from the Spinners' Union that it was contrary to its rules that a fine should be imposed, and that it must be at once refunded or serious consequences might ensue, etc. Now, in this case there could be no possible excuse for the spinner. The rule of the mill is that if from any cause whatever, either by the machinery being out of order, or the piecers being incompetent, bad cops are made, they shall be collected together and placed on the "top" of the sound yarn, and the spinner receives pay as though it was as good as the rest, so that no loss is incurred by him in the matter. In this case, however, the spinner, knowing probably that the bad work was the result of his own neglect, concealed it "below" the sound yarn, which got passed on as good to the weaver, thereby not only increasing his employer's loss, but inflicting loss of time and money upon his fellow-operative, the weaver. The trades union, however, which is supported from the wages, provided, in the first instance, by the employer, steps in and says: We have rules of our own which shall supersede your rules. No matter what damage, wilful or otherwise, our members inflict upon their employer or upon their fellow-workmen,



they shall not be made to pay for it, and even although they entered the employer's service subject to the declared rules of the mill, it is to be of no consequence. We rule supreme. We lay aside contracts at pleasure, decree who shall work and who shall not work, who shall live and who shall not live; whom we will we slay, and whom we will, we keep alive. In fact, we are the men, and wisdom will die with us. The Pope at Rome could say no more. Let them beware, however, or a day of reckoning must come, unless they are prepared to provide the wages of their members in perpetuity. This confirms from another point the lesson to be derived from the present strike at Melrose Mill, Oldham.

#### JUDGING PROTECTIONISTS OUT OF THEIR OWN MOUTHS.

"Little birds in their nests" do not always agree—that is, not if they are of the same disposition as the protectionist squabblers of the present day. One would think that followers of an identical policy would not be able to find ground on that account for mutual recrimination, any more than a Presbyterian would quarrel with a fellow believer for holding the same religious views as himself, or than the Irish Home Rulers would quarrel with the Gladstonians because they also are in favour of Separation. On the contrary, it seems more natural to imagine that when "birds of a feather" do "flock together," nothing but friendly greetings and mutual congratulations should prevail. But alas! 'tis not so. Protectionists, as we have before pointed out, cease to believe in their doctrine when it is practised outside their own doors. All the rest of the world must be free traders. We had occasion last week to comment on the inconsistency of those who adopt this attitude, our remarks having more special reference to France, a protectionist country which has been raising an outcry because the United States has advanced a step farther in the same path as that which our Gallic neighbours are treading. Now we have another amusing spectacle in the action of the American Government in connection with the French prohibition of the importation of American pork products. A voluminous correspondence on the subject has been sent to Congress. It shews that the efforts of Mr. Whitelaw Reid, the United States Minister at Paris, to procure a change were unsuccessful. Mr. Wharton, Acting-Secretary of State, writes that France now bases her exclusion upon economic instead of sanitary grounds. The chief letter is from Mr. Reid to M. Ribot. It is dated July 3rd last, and fully argues the case, shewing that France loses by her prohibitory policy, and intimating that it is obvious that French discrimination against American products may despite the historic friendship between the two countries, beget retaliation from which France would suffer severely, this pork prohibition being a direct attack upon the American agricultural classes, who can always control Congress. The indignation of the American Protectionists is caused by the fact that the prohibition is based on economic, not on sanitary grounds. In other words, America does not like protection to be imposed by foreign nations on her products, although she herself is fiercely, barbarously protectionist. The paradox is both amusing and significant. As an example of sublime impudence, the protest of the United States against the prohibition of her products abroad is unparalleled, seeing that at the very moment they remonstrate in this manner the McKinley Bill is being actively pressed forward. Of what use

is it to argue, as does Mr. Reid, that the threat of American retaliation should meet with serious attention in France? Of what avail is it to argue that America imports enormously from France, even with high protective duties, and is probably her largest customer for wines, silks, and other kindred articles? Is not the McKinley "crowd" doing its very best at this moment to lessen those "enormous" imports, and, if possible, keep them out altogether? What power of retaliation can the United States possess under such circumstances, we should like to know? The fact of the matter is that Europe, with its 360 millions, has the whip hand over the 64 millions of the United States in this war of protection. In this hemisphere are the world's great markets, for in it are eleven-twelfths of the whole number of mouths that require to be fed and the backs to be clothed throughout the world. Mr. Reid says that "prohibition is a direct attack upon the American agricultural classes, who can always control Congress." Just so. The more the 360 millions of Europe prohibit the products of American farmers, who can only dispose of a fraction of their crops amongst the comparatively limited population at home, the more those farmers will attack the American protectionist system, which causes Europe to retaliate. We should like to see the effect of further prohibition of United States foodstuffs. Such action, if adopted, would cause the farmers of the United States, "who can always control Congress," to turn and rend the party which exists for the benefit of a small ring of manufacturing monopolists—not by any means for the benefit of the farmers.

#### THE NEW COMPANY AT PAISLEY.

The *North British Daily Mail*, referring to the conversion of an eminent sewing cotton firm into a limited company, has the following remarks. So far as reference is made to the tendency to a change in the current of the demand from ladies to wholesale manufacturers of ladies' wear, we concur with the writer:—

There has been a good deal of talk about J. and P. Coats during the past week. The trade generally is not enthusiastic about its success as a limited company. Sewing cotton is becoming year by year more and more a question of value simply, and less and less ruled by names. Ladies are so much tempted to buy clothing ready made that their custom is decreasing in value, and the trade buyer, who buys for use and not for sale, looks to quality and price much more keenly. Sir James Whitehead's name and influence has been a decided advantage, for he is known to be keen and energetic, but the board of directors is not considered a good one upon the whole, and there is an impression that in future circumstances will be less rather than more favourable to the business, especially as increased duties are threatened in several countries.

#### ANOTHER OPERATIVE'S DISCHARGE RESISTED.

The question raised in these columns a fortnight ago as to whether employers shall retain the right to discharge operatives of whose incompetence to perform the duties for which they have been engaged, or of whose wilful neglect to do so they are fully convinced, has just received another illustration of the necessity of the employers taking the matter into their immediate and serious consideration. On Thursday week the card and blowing-room hands at the Britannia Mills, Middleton, struck work owing to a back tender having been discharged and a portion of her wages deducted for alleged bad work. The newspaper paragraph conveying this information does not say whether this is at the instigation of the Card-room Hands' Association or not. But whether or not, this case makes it

plainly evident that the idea widely permeates the operative mind that to strike under such circumstances is the proper thing to do. The whole of this question wants thoroughly investigating, and some just and perfectly equitable conclusion should be deduced from the facts, the principle of which should be adopted as a law between masters and men, to which both sides should appeal, and by which they should govern their proceedings instead of resorting to the foolish strikes to which in their present state of mind the operatives so freely resort.

#### THE VALUE OF UNION: AN OBJECT LESSON.

We commend to the notice of spinners and manufacturers the letter of our New York correspondent, which appears in another column, wherein reference is made to the highly-successful nature of the attack, or rather defence, by the Farmers' Alliance against the Jute Trust of evil memory, which attempted to saddle the agriculturalists with all the burdens attendant upon monopoly of the States. It may be remembered that a good deal of enthusiasm was developed amongst the farmers shortly after the movement for boycotting the jute ring was commenced, one method adopted in order to fan the flame of opposition having been the novel expedient of inducing a young couple about to enter into the matrimonial state to be married in cotton bagging. It will be perceived from the letter of our correspondent that the union has accomplished substantial results, the jute manufacturers having been compelled to drop their prices. The planters, however, do not appear disposed to buy even at the low quotations offered them, as they are possessed with the idea that if cotton bagging be substituted for jute the price of raw cotton will advance owing to the increased consumption, thus more than compensating them for the difference paid in the price of cotton as compared with jute bagging. In this assumption they are no doubt correct, and however undesirable it may be to manufacturers here for cotton to get dearer, they may study with advantage the history of the cotton bagging movement, which affords another illustration of the truth of the old saying that in union lies strength.

#### THE AUDITING OF OLDHAM LIMITED COMPANIES' ACCOUNTS.

A discussion is taking place in the Oldham local papers as to the powers of auditors of limited companies. It is urged that the auditors are too much under the domination of the directors. An auditor writes corroborating this statement, and declares that "accounts are passed which would never be presented to a Government auditor." He also states that on one occasion because he "objected to pass a false balance sheet," and ventured to hint in his written report that he was not satisfied, he was subjected to the "indignity of having the said report torn to pieces before his eyes by the chairman of the company." He suggests as a remedy "the adoption of some system by which, in case of emergency, or at stated periods, a Government auditor could be called in with power to examine the accounts for any past year, and to examine the directors and ordinary auditors with regard to these accounts. In view of the penalties which are attached to the issue of false balance sheets, this would act as an effective check, and would deter directors and auditors from venturing so far as they sometimes do." There is no doubt that auditors are so bound up with directors in ties of friendship and other matters that they are afraid to assert their position, for fear of evoking their displeasure and placing themselves out of occupation. We regret to see such



statements made as these, and trust that shareholders will speedily investigate and correct any irregularities they may find, otherwise worse evils may result.

#### SILK MANUFACTURING IN EGYPT.

Egypt has a silk manufacture, though hardly as old as the pyramids, or as its ancient flax industry. Still it is there, and is an interesting fact, being neither destitute of vitality nor enterprise, though like the silk trade of other countries it has its ups and downs. Last year was a "down," according to our Consul, who says:—

There was a falling off of £40,000 in the imports of raw silk during the year 1889. This was partly due to the fact that the factories were well stocked in 1888. This stock is now exhausted, and during the last few months sales have been good. The best quality of China silk was imported in about the same quantity as in 1888. From Japan there was very little, and the same may be said of Persian silk, which is brought either direct, or *via* Bombay, Constantinople, or Marseilles. Italian silk was imported about the usual extent until March, after which, on account of the high price, no more was brought. No Bokhara silk was imported, and twisted silk from Kokand, Tashkend, and Khiva arrived in smaller quantities, the output of silk in those districts having been small. About 350 to 400 bales only of China (wild) silk were imported in 1889. This silk is much employed in Egypt. Before being delivered to the factories it is sent to Syria, where the women separate the fine from the coarse threads, after which process it is returned to Alexandria. Syrian silk is in general too fine for the Egyptian market, and only a very insignificant quantity of the coarsest quality is imported for Cairo. Italian silk is in great demand, being cheap and suitable to the requirements of the market. During recent years the manufacture of silk fabrics in Egypt has greatly increased, and there are now factories at Edku, Mehallah, Cairo, and Damietta. At Mehallah are made the more costly fancy articles, especially the large handkerchiefs worn as head coverings by the upper Egyptian and Bedouin women. At Cairo caftans are the principal manufacture, and at Damietta are made the long black veils of various qualities worn by the Moslem women, and also the silk embroidered shirts worn by native women. These articles are not exported, although some are of a most excellent quality.

There ought to be a fair field for English silk manufacturers if the trade would study and cater for its requirements. But we regret to say that the more we learn of those who have its destinies in their hands, the more do its chances of revival from its moribund condition diminish.

#### A BLACKBURN GIRL WEAVER COMMITS SUICIDE.

Our local contemporary, the *Blackburn Times*, of Saturday last, contains a paragraph narrating a case of suicide by a girl of 17, a weaver in one of the mills of the town, situated near the canal. From the statement it appears that on Thursday morning week the girl was sent for into the warehouse by the cloth-looker, and dismissed for making bad work. She had previously had complaints made to her on the same grounds. Leaving her work at noon she went home, but, it is said, did not tell her mother that she had got discharged. After a time, but much too late, we should say, for her to have been properly going to her employment, (2-45 p.m. according to her mother's evidence) she left her home as if she was returning to her looms. Instead of that, however, she went to the canal and drowned herself, leaving her clogs, shawl, and watch on the towing path. Now a case of this kind, in which a nice young decent, tidy girl, such as it was stated in evidence she was, should terminate her life in this manner is inexpressibly sad. But, notwithstanding this, we hardly think that it calls for such comments as were made upon it by our local contemporary, in which the blame seems to have been put anywhere but in the right place. The editor says:—

A very sad case of suicide was investigated by a Blackburn jury yesterday afternoon. A girl of 17, employed as a weaver, drowned herself in the

Leeds and Liverpool Canal on Thursday because she was dismissed from the mill for bad work. It is easy for prosperous people, blessed with good health, and with sensibilities which can only be touched by a rude shock, to ask how the girl could be so foolish and wicked as to destroy herself, but it is not so easy for a reflecting mind to dispose of the matter so summarily. The dreadful incident is a sad commentary upon our social system. The dead girl had probably learnt early what the struggle for existence means in England, and possibly her sensitive nature shrank from a task for which she felt herself unfitted. Pacing backwards and forwards on the towing path, where she was last seen, her imagination no doubt magnified the difficulties in her way, and at last, her mind unbowed by the dread prospect, she threw herself with her troubles into the water in the hope of rest. The conditions under which the working slaves of this country exist beget a haunting fear that they will break down in the battle of life, and the children they bring into the world inherit this feeling of insecurity. It is this which leads to many a suicide that otherwise seems inexplicable. Working men and working women can understand the feeling, but those without experience of the toils and anxieties of a factory life cannot.

Now we are rather surprised that the editor of our contemporary, with his practical knowledge of mill life and of mill workers, should have come to such conclusions as to enable him to write the above impeachment of our social and industrial systems. The facts in no sense warrant it. There is no evidence that the girl was either in weakly health or poverty, but there is rather the reverse. She is stated to have been a "a nice, tidy girl," and was kept on in the hope that she would improve. This implies good health. She left her shawl, clogs, and watch on the towing-path. Shawls and clogs are the common articles of attire of even very respectable working people, whilst the possession of a watch shews that the girl belonged to the most respectable section of these. There is thus nothing in either her health or station that should have led her to destroy herself any more than more prosperous people would have done from the propelling influences. Neither do we think the incident is in any sense "a sad commentary upon our social system." It had really nothing to do with it, for nowhere under the sun is the lot of the working classes lighter than in the cotton industry, and in no occupation can girls or boys earn so much money, nor so soon practically establish their independence, and demonstrate that they know how to enjoy life. Preston-road and the Park, the popular promenades on a Saturday evening and Sunday, demonstrate this truth beyond impeachment. We don't believe that the girl had ever the slightest conception that she was engaged in a struggle for existence, or that her imagination magnified the difficulties in her way so much as to unhinge her mind and lead to the rash act.

#### HOW TO ACCOUNT FOR THE SUICIDE.

The explanation of the above as we read the evidence at the inquest must be sought elsewhere, and we think lies upon the surface. "She had not been a weaver long, and had lost her work at another mill through bad work." It is to be regretted that it was not elicited how long she had been a weaver, because here is the secret of her trouble. She had assumed the responsibility of taking charge of a pair of looms before she was qualified. She ought to have remained a "tenter" until she had gained more experience and skill, then she would have made better work and would have kept her place. But when children of thirteen, who have been short-time tenters, are given two looms immediately after they have "passed" full time, a girl of 17 would feel it *infra dig.* to be a "tenter," however little experience she might have attained; hence her premature assumption of the responsibilities of a two-loom weaver. And in this ambition there

is little doubt she was stimulated by her parent, who would hardly be content with the 5s. 6d. per week brought home by the daughter when children several years younger were bringing 11s. to 12s. per week into other households. If this conjecture be true, and we have no doubt but that it is very near it, we may ask where or how is the blame chargeable to our social system and where the struggle for existence? Neither of these matters are at fault. The direct cause of the rash act in our opinion lies elsewhere, though very near. The girl, discharged, left her work at noon, went home as usual to dinner, the dinner hour being, as we presume, the usual one of from 12-30 to 1-30 p.m. In the ordinary course she would again have left home to return to work at about 1-20, but the mother states in her evidence that her daughter did not tell her that she had been discharged. Unless the mother goes to the mill also, which she may do, we cannot credit the statement she makes, or at least that she did not find out the fact by her daughter not returning as usual. We suggest that this may have been done and the girl severely scolded for her inefficiency. In the irritation, temper, or dread of further treatment of the kind is to be found the direct impulse to self destruction. Where then is the pertinence of the language our contemporary uses regarding the conditions under which "the working slaves of this country exist" and the "haunting fears" these suggest? There are physical and intellectual life-failures which end in self destruction for which nobody is to blame, and may partly be attributed to the conditions in which the unfortunates find themselves, owing to circumstances over which they have no control. But this case is not one of either of these classes. It is a pity then that our popular press should use language that by imputation blames either our social or industrial systems for incidents for which they cannot in the least be justly held responsible.

## Articles.

#### MR. GRANT ALLEN ON FAIR WAGES.

A recent *débutant* in the realms of popular literature is *Short Cuts*, a halfpenny journal whose quality is considerably above the average of its competitors. The enterprising editor has secured a long list of eminent contributors, which he publishes, and an article from one or other of these appears weekly. Mr. Grant Allen, whose name is not unknown in journalistic literature, in one of the earlier issues, contributes an article on "Fair Wages." It is to this article we propose to devote a short space.

Mr. Allen starts by saying that the editor has asked him to discourse about Fair Wages, and that "the task affords him peculiar pleasure," for a very peculiar reason, and one in which we think any intelligent person who has read or may read his contribution, and has ever thought five minutes upon the subject will concur with him. It is—and we give it in his own words—"Because I haven't the very faintest conception myself what on earth Fair Wages can possibly mean." Mr. Allen goes on to say:—

There is a gentleman in Italy, we are told, who undertakes to cure most known diseases, and many unknown ones, by the application of something that he chooses to describe as Blue Electricity. Now, electricity (within my humble experience) may be positive or negative, mild or powerful, constant or intermittent, but cannot conceivably, it seems to me, be blue, or green, or red, or yellow. Just in the same way, I take it, wages may be sufficient or insufficient, high or low, in kind or in coin, squalid or substantial: but I don't know how they can possibly



be fair. The adjective and the substantive do not belong to the same category of ideas. You might also as well talk with eloquent vagueness about the beautiful murder or a charming robbery.

How any gentleman with a low average knowledge of the English language could have penned such sentences is beyond our ability to comprehend. It is evident Mr. Allen has confused the relationship between a man's earnings and his necessities and his relationship to a capitalist who engages him to contribute something to the task of production, which are two very different things indeed. The adjective and the substantive *do* belong to the same category of ideas, and the working classes who have used the phrase: "A fair day's wage for a fair day's work" for generations past in relation to their labour shew themselves to possess a far more correct conception of the nature of the industrial problem than does Mr. Grant Allen. It is in the tasks of production and distribution, that the capitalist and the labourer unite their energies, and in the sale of their productions look for their reward. This truth may be stated more fully, but in order to keep the exposition to the simplest form let us confine our exposition to an illustration of the former, say the production of corn or calico. On examination the task of distribution will be found to be perfectly analogous.

We have affirmed above, and here reaffirm the proposition that the adjective and the substantive in the phrase "fair wages" do belong to the same category of ideas, and the affirmation may be properly extended to the relative phrase, fair profits. Fair profits and fair wages consist in the sums that would be awarded to the capitalist and the labourer in a strictly equitable division of the surplus fund remaining over the amount of the outlay necessary to the production of a thousand bushels of corn or a thousand pieces of calico. This division to be equitable must be based upon the relative importance of their respective contributions to the task and its requirements. Now this principle takes no cognizance of the personal desires or necessities of either the capitalist or the labourer. To do so on either hand would be to acknowledge the validity of false claims. It may now be inquired what the two parties respectively provide, and we will first take the case of the capitalist corn grower. The essential requisites for the production of a thousand bushels of corn are, 1st, land; 2nd, seed; 3rd, implements for ploughing and reaping; 4th, capital on which the capitalist must subsist himself, and from which he must pay wages to his labourers in order that they may subsist also, and without which they would perish before the harvest could be gathered. All these are essentials, and the capitalist corn grower provides them all. But these are not all: the latter further assumes all risks and responsibilities. The season may be unfavourable; blight or insects may ruin the growing crops; floods may sweep it from the harvest-field or fire burn the stacks; mildew or vermin may destroy it; or, having escaped all these dangers, bounteous harvests all the world over may so reduce the selling prices that the sums realised in the market will not return the amount expended upon the production in rent, seed, implements, and labour. Briefly stated, this is the capitalist's contribution to the production of our hypothetical parcel of corn. Now let us see what the labourer contributes. The catalogue is a brief one: he brings his labour, simply that and nothing more. He assumes no responsibilities; he insures his investment of labour by stipulating to be paid for it in weekly or monthly instalments, as the case may be, at a fixed rate, irrespective of what may be the

ultimate result of the joint labours of himself and his capitalist employer. Let us, however, assume that the venture upon which the two parties have been jointly engaged is successful; that the harvest is a good one; that the prices realised are fairly remunerative; and that when all expenses have been paid a fair sum remains over. This is the profit fund, out of which the capitalist must be paid for his contributions to the production of the harvest, and out of which provision must be made for the labourers' wages in the next joint venture. Now on what principle should this fund be divided, if not on that which would award to the two parties shares in proportion to their respective contributions to bringing the fund into existence? The capitalist gives his labour in the conception of the idea of growing corn, its careful elaboration, in the selection of the proper land, the economical investment of his money in the provision of the materials, and the general superintendence and direction of the whole procedure, antecedent to the sale of the produce. Is it not fair to say that his contribution is ten-fold greater than that of the labourer, and that each part is equally essential to the completion of the joint task? But suppose we assume it to be only five times as great. Would he not equitably be entitled to five times the amount awarded to the labourer? Say the sum left over after paying all the outgoings, and for such a proportion of the cost of the fixed stock as would represent one year's depreciation by wear and tear, was £6, this would require to be divided into six parts, of which the capitalist would in equity take five portions, whilst the labourer would require the remaining one. Thus the £5 acquired by the capitalist would be a fair profit; and the £1 which the labourer would take for his share would be a fair wage. Any other division would be unfair; would be inequitable. It will thus be obvious that in awarding the shares of the profit fund no cognizance can properly be or is taken of the necessities of either capitalist or labourer; and the reward attending their efforts may be quite beneath their necessities. In the case of the capitalist, if work of this kind was persisted in financial ruin would be the result; in that of the labourer, starvation. But these are matters for their individual consideration, and, as might be expected, have been considered accordingly. We have observed above that the labourer insures his investment—his labour—in the task of production, by stipulating for a weekly or monthly payment in coin or kind for his services, and bases the price at which he estimates the value of his labour upon his requirements for subsistence in a more or less comfortable state. By this he throws the onus of all the risk upon the capitalist, who, instead of getting the proportion of the profit we have instanced above, often finds there is none and that all his contributions to the venture of producing corn and the risks he has undertaken not only go without reward, but leave him a heavy loser. By thus stipulating for an assured reward, the labourer brings into operation two principles which influence the amount that he can obtain. The first of these is the competition of other labourers; the second is the ability of the capitalist to pay the rate demanded. In either case the man who stipulates for an unfair rate is likely to go without employment; in the first case the labourer who asks less for the same quality and amount of services gets the job; in the second the capitalist would have his means wasted and soon cease to be able to find employment at any price, therefore he declines the offered services. The converse

of this is equally true. The capitalist on his side is just as much under the control of the principles just mentioned as the labourer; he must pay as much as another capitalist for the services he requires, or he fails to obtain it; alternatively, in the absence of competition if he crush down wages below the point of subsistence, he drives it away to other occupations, and thus brings his venture to a stand.

Now what is the actual result of the working of these conditions? We venture to say that in hardly a single instance in the present day in what we may term civilised industries of a manual or mechanical character, does the capitalist secure anything like the proportion of the profit fund that we have shewn to be a "fair" one; and that on the contrary the labourer gets a far larger proportion than what would be awarded to him in an equitable division. In olden times this was not often the case, but the revolution in our systems of industry has changed all this, the stimulus given to production, mainly by capitalists, having on the one hand greatly increased the demand for labour, thereby enhancing its value, and on the other, decreased the cost of subsistence. This has been almost all to the advantage of the labourer and to the disadvantage of the capitalist, as it has diminished his share of the profits. The greatest struggle of to-day is not that between capital and labour, albeit this is the noisiest, but that between the producer and consumer.

We pause at this point because it is impossible to expose the fallacies and sophisms that may be comprised in a column of print in the same space. As, however, the subject is one just now engrossing a great deal of attention, and the influence of such writings as these of Mr. Grant Allen is certain to be purely and widely mischievous, we propose to return to the matter again.

## Foreign Correspondence.

### TEXTILE MATTERS IN THE UNITED STATES.

NEW YORK, AUGUST 9TH.

Mr. Speaker Reed is not beloved of Mr. Rogers, who represents a democratic constituency in Arkansas. This fact was made very apparent the other day, when the fiery representative from the state gave vent to the spleen which had accumulated during the domineering actions of the Republicans in connection with various Bills recently under discussion.

The speaker, said Mr. Rogers, had deluded the majority with the full assurance on the part of Republican members that, if this scheme should break down under the judgment of a liberty-loving people, they would perish like Samson under the ruins, but if it succeeded, that he alone should reap all the glory. Their want of patriotic courage was exceeded only by their suicidal stupidity, and among them all had not been found a man with the courage of a Jackson, the patriotism of a Henry, and the love of liberty that inspired the fathers, who could say "This is our country, these are our liberties, these are our countrymen and you are our servants, and we will not have the one trodden down under foot nor the other outraged and wronged." "No," he concluded, "may I tell you, Mr. Speaker, that they curse you and despise you and hate you; and when you are assailed in private and in public, they are silent." Language of this kind is accountable for as an outcome of the pent-up irritation which for some time has been rankling in the breasts of the opponents of the Force and Tariff Bills. There is no additional news of importance to report regarding the latter measure. The Republicans are finding that the



opposition to the measure shows no sign of weakening, every inch being contested with the most dogged pertinacity. Senator Plumb has been saying very harsh things about the measure, and other members, plucking up courage to speak independently, now that even Mr. Blaine is supposed to be at loggerheads with the tariffinkers, have annoyed the dominant party by their guerilla tactics. It is considered probable that the reciprocity idea will receive expression in the measure which will then pass. The loss occasioned by the unlooked for delay that has arisen, has been severe to both manufacturers and distributors. Importations have been so heavy that in any case domestic producers will have to endure the almost total loss of their spring trade, while the autumn trade will certainly be adversely affected. Buyers have been more anxious of late to lay in supplies of low-class goods, which will be affected by the tariff.

The abnormally large stocks of cotton goods at Fall River coupled with the lowness of prices causes much anxiety, and an endeavour is being made to stop the mills. The proposition of the Fall River mills is to close for six days during the month, each mill to select the time for its closing. The mills short of cotton will be first to avail themselves of this shut-down agreement. The Rhode Island mills, it is stated, will not consent to any agreement that does not impose a shut-down of two weeks. Nearly all the mills admit that a curtailment of the output is a necessity, but those having a supply of cotton do not fall in with the views of the Fall River people. A shut-down of one week is regarded only as an exemption from purchases of cotton by the mills that stop; a shut-down of two weeks by all makers of printing cloths would give a temporary relief, but a stoppage of one month would be practical in lessening the supply and improving the prices for cloth, if it did not have a depressing effect upon the price of cotton.

At Paterson the strike fever has not yet abated, the operatives being apparently determined to force the issue for the purpose of a trial of strength with the masters. When wages were reduced some time ago they did not raise objections, as it was admitted that trade was very depressed. Now, however, they claim the right to an increase, and, accordingly, there has been an interruption in the working of several mills.

One hundred and twenty weavers employed by Pelgram and Meyer left their looms last Saturday, and another strike is also in progress at the mill of Lambert Brothers, and Miller, where employes have also asked a return to the old scale of wages.

Hoffmann and Frommelt's weavers are on strike against a reduction of 20 per cent. They claim that they are already being paid less than the weavers in other mills.

The strike of the weavers at Clay and Grocock's has been settled and the looms are now again at work.

Paterson, by the way, has turned out some attractive lines of late in silk curtains and table covers.

The satinnet manufacturers, representing nearly all the important mills in the country, appointed, at a meeting on the 4th inst., a committee to devise a plan of consolidation similar to that adopted by the card clothing makers. Nearly all the satinnet mills in the country are located in Worcester county, and it is hoped, by closer combination, to reduce the number of commission houses, and lessen competition.

Members of the jute trust bitterly regret their action in rousing the opposition of consumers of bagging. But the mischief is done now, and it will take a long time to make up for the losses which have been incurred by the combination. The jute trust was destroyed by the sturdy action last year of the Farmers' Alliance. The price for jute bagging has fallen to 8 cents a yard, but that rate is no temptation to the planters. They prefer to use cotton at 12½ cents a yard. In this they display good judgment and correct business principles. If the entire crop this season, the lowest estimate of which is 7,000,000 bales, should all be wrapped in cotton bagging, 35,000,000 yards of it would be required, equivalent to 27,300,000 pounds of the

fabric, which would make a new market for (in round numbers) 55,000 bales of 500 pounds each. This increased consumption would, it is believed, add to the market price of the staple at least half a cent a pound; consequently, every bale of 500 pounds would be worth 250 dols. more than but for the general adoption of this new bagging, while the saving by the use of jute would be but 23 cents per bale. This result, be it understood, has not yet been achieved, but the Alliance is in earnest, and if it maintains its present sturdy attitude a little longer the result will be a complete victory for them. There is a healthy moral to be derived from the history of this cotton bagging movement which "cornerers" of all kinds, from the Liverpool cotton broker to the Chicago pork and grain operator, would do well to note. Lancashire spinners and manufacturers may also see what great success a really united body of men may achieve from the example of the Farmers' Alliance in its struggle with the jute trust, which should spur them on to a renewal of their efforts in combating the parasites who thrive by their misfortunes.

The American Printing Company's wool finish indigoes are being shown by Bliss, Fabyan and Co. in very handsome fall colourings in plaids and stripes. These goods are all in unique and rich effects in imitation of worsted dress goods, and are received with commendation by the trade.

The New Augsburg Cotton Factory Company distributes for 1889-90 a dividend of 13 per cent., against 10½ for the previous year.

QUERIES AND REPLIES.

FLOCKING MACHINES WANTED.—Would you have the kindness to give me the address of an English firm which makes machines for grinding (not cutting) the shearings, resulting in the woolen cloth branch? A client of mine, a cloth manufacturer, wishes to purchase such a machine, and he has been told that they are manufactured in England.—B. G. (Germany).

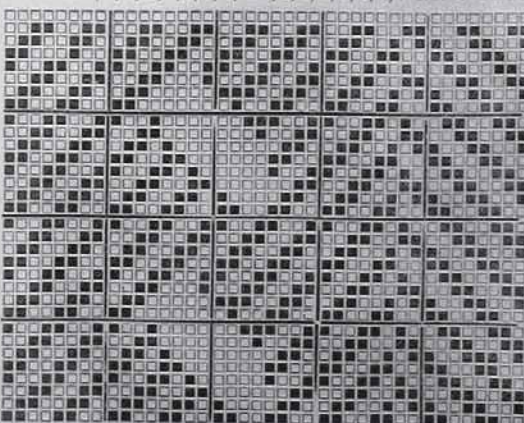
A. W. (Manchester).—Messrs. Samuel Laycock and Sons, Limited, make the loom for weaving hair cloth themselves, and it is not, we are informed, for sale.

Designing.

NEW DESIGNS.

LINEN AND COTTON STRIPE.

We give No. 1 design for a dress material. Warp and weft cotton, or warp cotton and weft 30's linen; 72 ends per inch, 24's warp and 12's cotton weft, 52 picks, 12 shafts, 16 to round (see pegging plan). Draft: 24 dark brown, 6 light red, 24 dark brown, all on 1, 2, 3, 4 shafts, straight over; 16 dark brown on 5, 6, 7, 8, 9, 10, 11, 12 shafts; 24 dark brown on 1, 2, 3, 4 shafts; 6 of light blue on 2, 1, 4, 3, 2, 1; and 24 of dark brown on 4, 3, 2, 1, 4, 3, 2, 1, 4, 3, 2, 1, 4, 3, 2, 1.



NO. 1.—LINEN AND COTTON STRIPE.

4, 3, 2, 1, 4, 3, 2, 1. The warp pattern is 24 dark brown, 6 light red, 64 dark brown, 6 light blue, 24 dark brown; total, 124 ends. The 16 of dark brown to be two in a heald, one heald per dent.

No. 2.—A second pattern for a Harvard shirting. The same particulars as No. 1. Pattern and draft: 16 of fawn, 8 dark blue, 16 fawn on 1, 2, 3, 4 shafts; 8 red on 5, 6, 7, 8, 9, 10, 11, 12 shafts; and repeat with 16 of fawn on 1, 2, 3, 4 shafts. Pattern: 16 fawn, 8 dark blue, 16 fawn, 8 red; total, 48 ends. The warp either for morning dress material or shirting may be of any light tone, and weft dark shades. The spots in alternate stripes may be thrown from the left to right, which will give variety and expression to the figure. This is easily effected by drawing in the spot ends on 12, 11, 10, 9, 8, 7, 6, 5 for one stripe, and 5, 6, 7, 8, 9, 10, 11, 12 for the second stripe. An immense number of changes and combinations may be easily produced by weave and colour in these fabrics.

No. 3.—A fancy stripe, 72 ends and 72 picks per inch, 4-end or cassimere twill, warp and weft 20's. Pattern and draft: 12 fawn, 3 ruby, 12 fawn, on 1, 2, 3, 4 shafts, or straight over; two ends of silk doubled or rather 2 ends of two-fold 20's white silk to be drawn in on the second shaft; two in a heald, 12 fawn, 3 ruby, 12 fawn, straight over on 1, 2, 3, 4 shafts; 2 white silk, two-fold 20's, two in a heald on fourth shaft. It will be seen that the silk will alternate on the second and fourth shafts, giving a pleasing effect to the rest of the stripe at a small expense. The weft all fawn. We give this pattern as one very likely to become a favourite during the latter part of the season.

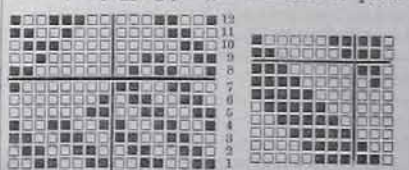
No. 4.—A check, same read, picks, and twill, as No. 3. Warp and weft pattern: 20 dark terra cotta, 2 ends of black and fawn, tightly twisted to make 20's, four of terra-cotta, 2 black and fawn twist, 20 dark terra-cotta, 6 silver grey. Total ends in pattern, 54.

No. 5.—Particulars same as No. 4. Pattern of warp and weft: 16 light cardinal red, 4 ends of dark blue and white, twisted to make 20's, two of cardinal, 4 ends of dark green and primrose very loosely twisted to make 16's; total, 26 ends.

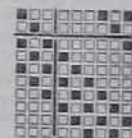
No. 6.—A ten shaft, ten to the round, fancy check, 24's warp and weft, 60 ends and 60 picks per inch, 60 chocolate, 9 white, 9 orange, 9 red; weft the same pattern.

The six patterns here given may be all cotton, or linen and cotton, and will be found suitable novelties for autumn wear.

No. 7.—This is also a ten shaft, ten to the round (see pegging plan), 60 ends and 60 picks



NO. 1. PEGGING PLAN.



NO. 7.



NO. 9. PEGGING PLANS.



to the inch; warp 24's, two in a heald, 24's weft, two in a shed, 60 white, 60 violet; weft the same pattern. This make of cloth is a union of linen and cotton, the white, grey, or cream tint in warp and weft linen, the colours of warp and weft cotton. If made in this way the linen must be about 64's. A variety of pretty designs (with turquoise blues, bright greens, terra cottas, etc., for cotton in warp and weft), can be produced by any twill or satin within the compass of ten shafts, and if the draft is broken, another and very extensive range of patterns can be obtained.

No. 8.—The details same as No. 7, but a plain canvas cloth on 2 shafts. Warp pattern: 2 white, 2 sapphire blue, for 20 repeats or 80 ends, 4 dark maroon; 2 white, 2 terra cotta, for 20 repeats or 80 ends, 4 dark maroon; total, 168 for complete pattern. Weft same as warp pattern; the white of warp and weft 56's linen, 2 in a heald and 2 in a shed.

No. 9.—A cotton zephyr stripe on 4 shafts for plain cloth, 4 for stripe, 40 reed, 2 and 4 in a dent, 30's warp and weft. Pattern and draft: 10 white, 2 ruby, for 10 repeats, on 1, 2, 3, 4 shafts; for plain cloth, 24 of violet, 4 in a dent on 5, 6, 7, 8 shafts (see pegging plan). Complete pattern, 144 ends, or 1,296 on 30 inches. Weft all white. The following list of shades (with white for the ground) will be found useful and fashionable for the stripe:—Crimson, mignonette, tan, maize, pink in all its shades, yellow, primrose, purples, blues, browns, etc. Both ground and stripe may be increased or decreased at pleasure.

GAUZE FABRICS.

Additional examples to those previously given are supplied in Figures A, B and C. Our remarks on these patterns shall be as concise as possible, and we would urge upon those of our readers who are endeavouring to obtain a firm grasp of this type of pattern to examine minutely the relationship between pegging plan, healding plan, and full sketched pattern, our remarks being given with the distinct idea of assisting such examination as much as possible.

Figure A is very similar to a previous pattern save that here the thick threads do not oppose but follow each other, all working exactly the same way. In the actual pattern these threads will be much closer together and will give a distinct wave effect. On examining the healding plan, pegging plan, etc., the following observations may be made:—1st, the thick thread crosses four thin threads and completes its convolutions on thirteen picks, so that for the plan worked alongside to be correctly completed two repeats of the gauze effect (i.e. 26 picks) are requisite; 2nd, observe that our pegging plan, etc. are given for weaving the pattern wrong side up, also that we commence the plan on the two picks which come over the thick crossing thread in succession (i.e. the 3rd and 4th picks of the fully sketched out pattern). It will at once be observed that the thick crossing thread flushes over two picks between each tie, and that when the two weft picks flush over the thick thread it is evidently done to dispose of the last, viz., the thirteenth pick. Bearing these facts in mind, if the plan for Figure A be compared with the full sketch, no difficulty should be experienced in fully realising the relationship between them. Now the relationship between pegging plan, healding plan, and sketch should be carefully studied, when little difficulty should be experienced in mastering all details, etc.

If, say 4, 6 and 8 stripes similar to the two shewn in Figure A be combined with stripes of plain, a useful pattern will be produced suitable either for all white cotton, or white and coloured cotton yarns, or for cotton and silk in unison. If, however, instead of the plain stripe a stripe of the effect shewn in Figure B be used, a much better result will be obtained. In this effect it will be noticed that between every gauze crossing there are eleven picks, an odd number being required for the reasons previously mentioned. In order to obtain effect with the warp similar to the gauze crossing in the weft several dents must be missed, thus the effect is altogether like a check of plain white fully demarked by the gauze crossing in the weft and the blank reed spaces in the warp.

Figure C is a sketch of a splendid example of gauze weaving approaching in effect embroidery. This shall claim full consideration in our next issue.

Notice that in all the plans given, the threads marked in solid type represent the doup.

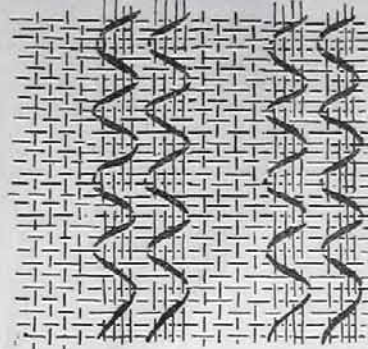
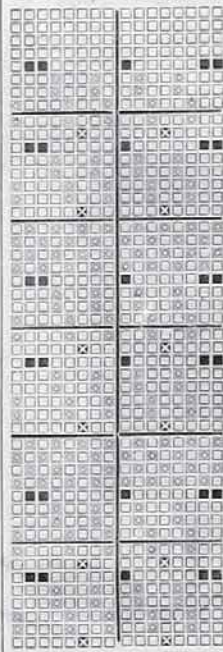


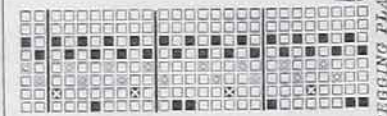
FIGURE A.



PLAN FOR FIGURE A.



HEALDING PLAN FOR FIGURE A.



PEGGING PLAN FOR FIGURE A.

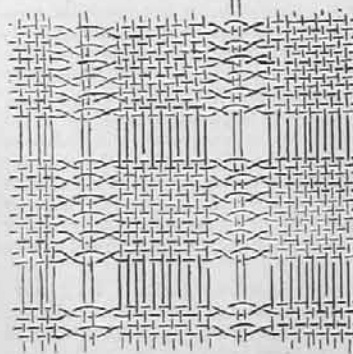
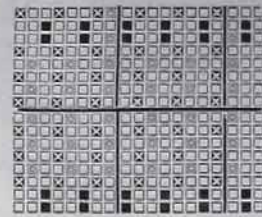


FIGURE B.



PLAN FOR FIGURE B.

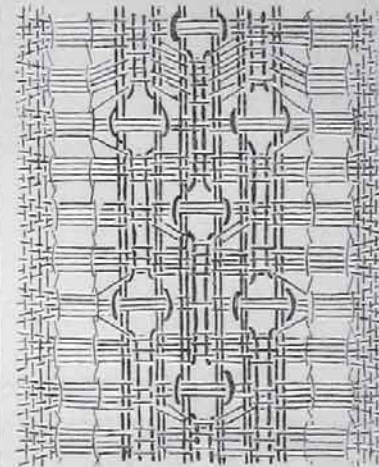
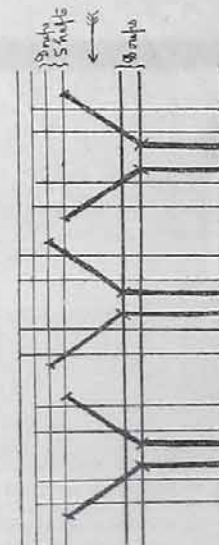
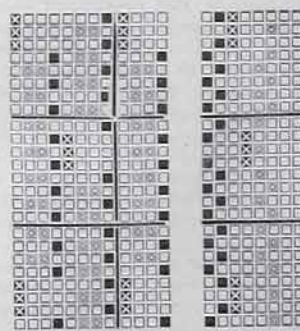


FIGURE C.



HEALDING PLAN FOR FIGURE C.



PLAN FOR FIG. C. PEGGING PLAN FOR FIG. C.



## Machinery and Appliances.

### IMPROVEMENTS IN THE MULE.

MESSRS. JOHN HETHERINGTON AND SONS,  
LIMITED, MANCHESTER.

The cotton trade continues to advance. The world's appetite for cotton goods seems insatiable. In every place where the industry is established it seems to be growing. England, the United States, Prussia, Germany, France,

being as perfect as at present, was without a rival, having hopelessly distanced the old throstle spinning frame. But the latter was improved, and in its modified form with the new name of ring frame came to the front with a rush. For a time it carried everything before it, winning everybody's favour by its greater production and economy of working. Many friends of the mule seemed almost inclined to give up its case and admit defeat for ever. There were, however, those who retained their faith in Crompton's grand invention, and therefore set to work overhauling it and improving its details, which they found capable of being done to an extent that surprised even them-

finish of their productions needs no commendation from any quarter, being thoroughly established in every section of the trade. It has been overhauled and improved in every detail where possible, a few of which we may enumerate. In connection with the front roller, the makers have introduced a considerably larger clutch box, rendering it stronger and quicker in action, and diminishing the liability of breakage. The sliding portion of the box is provided with a bearing much longer than usual by which the movement sometimes termed "wobbling," is quite prevented. This consisted of a slight canting of the clutch box through the hole getting too large from wear, and which resulted

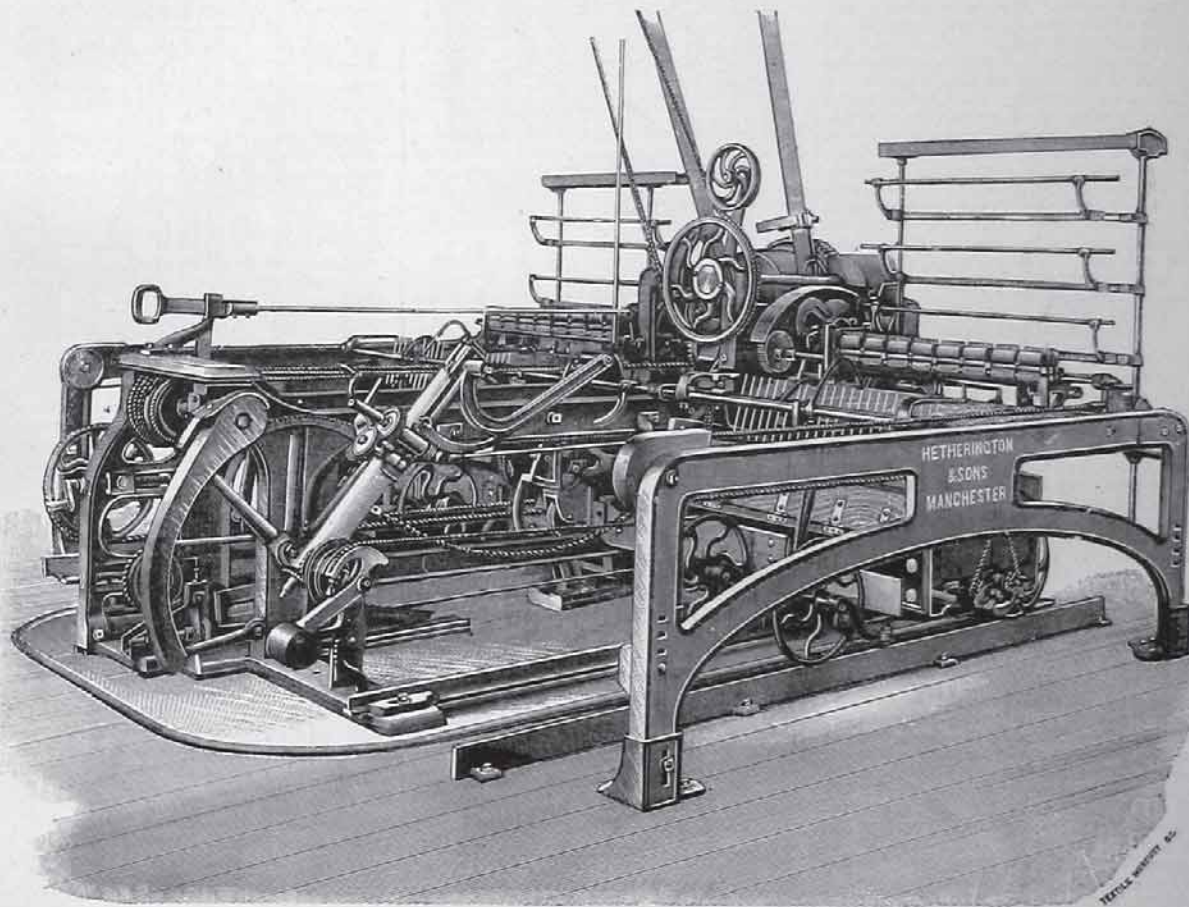


FIG. 1.—IMPROVED MULE HEADSTOCK, FRONT VIEW.—MESSRS. JOHN HETHERINGTON AND SONS, LIMITED, MANCHESTER.

India, and even the countries in which it has only recently been planted, are all increasing their spindles. In this country not only is a rapid extension taking place by the building of new mills, but old ones are also being re-furnished to a considerable extent with new machinery, embodying all the latest improvements that have up to the moment been placed upon the market. Hence the production is being added to from two sides—by the increase of spindles, and the substitution of new spindles of higher productive capacity for those which are now rendered obsolete by the progress of invention.

The cotton spinner of to-day has the choice of two very perfect machines for transforming cotton into yarn, the mule and the ring frame. For a long time in the earlier decades of the present century, the mule, though far from

selves. To such a degree was this the case, that even in the domain everybody seemed willing to surrender to the new comer, the question of ultimate superiority became and remains even to this day an open question. The contest which two or three years ago raged so fiercely between the rival spinning machines has, however, latterly to a great extent subsided, the ring frame having conquered a well-defined sphere of usefulness for itself, which it bids fair to retain. Of the extensions that at the moment are taking place in this country, the majority are being awarded to the mule. This is owing to the improvement in the quantity and quality of its production.

The mule illustrated herewith is the production of the old and well-known firm of Messrs. John Hetherington and Sons, Manchester, whose reputation for the excellence, high quality, and

in the imperfect engagement of the teeth, only a portion entering, causing great strain upon them and frequent breakages. This is an improvement that has been highly appreciated by the trade in America.

The rim shaft has been greatly strengthened, being now made of steel  $1\frac{1}{2}$  inch diameter, as against the old one of wrought iron  $1\frac{1}{2}$  inch diameter. The connected parts are also all of strengthened steel, this having been substituted wherever possible.

A patented appliance has been introduced for locking the Mendoza weight until the carriage gets clear away from the beam. This prevents the weight from jumping, and so avoids the snarls that arise from the momentary stoppage of the carriage whilst the rollers continue delivering rove. It also obviates the breakages that are liable to occur when the Mendoza



lever is locked, and the minder changes the cam shaft for a short draw.

The makers have also introduced a large backing-off friction arrangement by which slipping is quite prevented, a fact which can be easily tested and the means for doing which are well known. Cast upon the backing-off lever is a projection, to which is attached a finger, one end of which would act upon a small bowl upon the strap-fork lever in the event of the backing-off friction wanting to get into gear, and would prevent it until the strap had got upon the loose pulley. This arrangement effectually prevents the two motions entering into a contest with one another for the mastery, and thus obviates much of the wear and tear of the strap and risk of breakage to the wheels.

The gaining wheel has been greatly improved by enlarging it, thus enabling the tension upon the yarn to be reduced to the lowest point. It

enings motion fixed on the back of the square, and which is easily accessible. In the arrangement in common use one band may be doing all the work and the other nothing. The improvement ensures uniform work from both scrolls.

The mule is also furnished with an excellent safety motion, by which the carriage can be stopped in any part of its inward run. For the prevention of accidents to the workpeople in charge this is an invaluable appliance. A travelling scavenger is also applied which cleans the front of the beam, and the top, the stand bottoms and the top and back of the carriage. There is thus very little necessity for any of the workers to place themselves in positions of danger.

If desired, the makers can supply to this mule, roller, jacking, stretching and nosing motions, either automatic or as worked by hand. It can likewise be fitted with either

## Bleaching, Dyeing, Printing, etc.

DR. GEORGE WATT ON NATIVE INDIAN DYES.

"Notes on Indian Economic Products" is a valuable publication issued at intervals by the Indian Government, in which Dr. George Watt generally has something good to say about Indian products of various kinds. In the last volume issued he notices the native Indian dyestuffs, of which he gives a list of 193, and also gives vent to a complaint at the way many of these are being superseded by the coal-tar dyes, the displacement of madder by the cheaper alizarine, and turmeric by the aniline yellows. He goes on to say that "while these coal-tar dyes have been made permanent to detergent influences, the knowledge of their more or less fleeting character under the action of light, com-

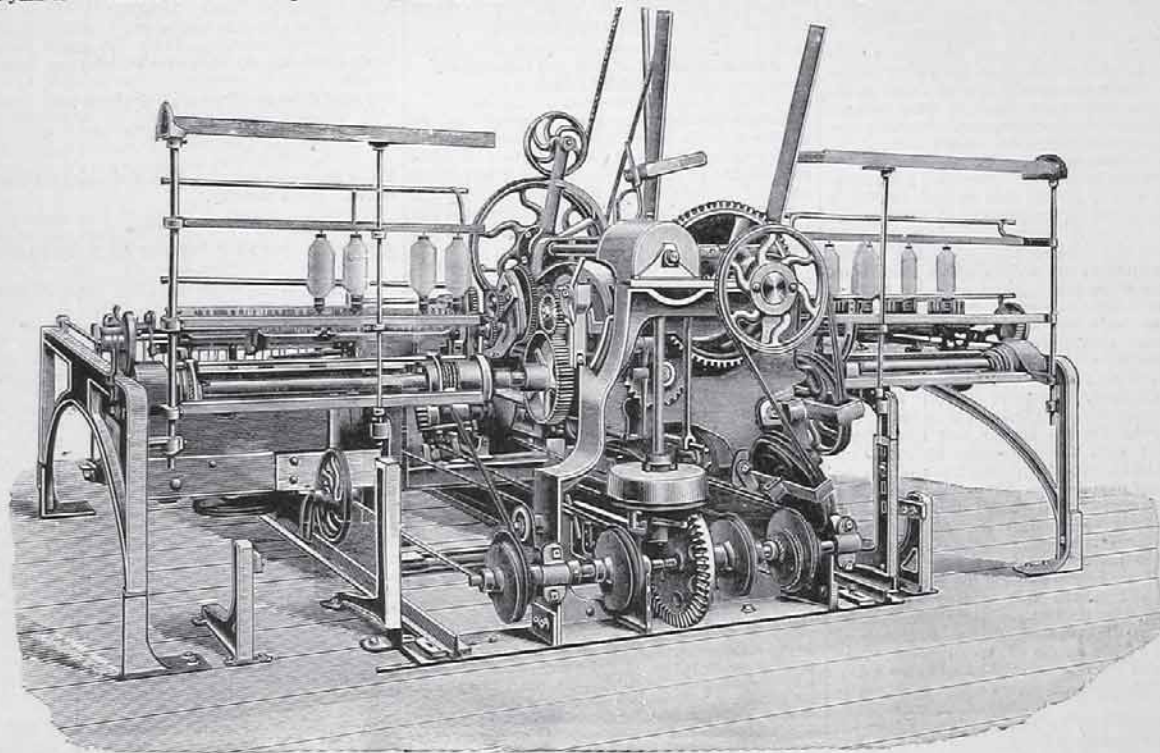


FIG. 2.—IMPROVED MULE HEADSTOCK, BACK VIEW.—MESSRS. JOHN HETHERINGTON AND SONS, LIMITED, MANCHESTER.

permits of the employment of a gain wheel of 120 teeth, which is very important, as the gain can be regulated to the decimal of an inch.

In the ordinary arrangements the movements of the straps when changing positions are much too slow, causing considerable loss of time, which it is desirable should be avoided as far as possible. To accomplish this the makers have designed and supplied this mule with an improved hastening motion for expediting the movement of the strap in both its directions of traverse. It may also, if preferred, be used for either way alone. The rim pulleys are made to suit either two, three, or four grooves.

An improved full-cop stop-motion has been added by the makers; it is simple in construction, effective in action, and not liable to derangement. The headstock is also fitted with a backing-off chain tightening motion of a very simple and effective character. Another improvement the makers have introduced is to substitute a continuous drawing-up rope for the two now in use. This arrangement has a tight-

single or duplex driving at the option of the purchaser. It is also made with the driving arrangement parallel to the beam, which enables it to be used in old and narrow mills without any troublesome and expensive re-arrangement of the shafting. Our readers may be referred to our issue of September 28th last year for a full description and illustration, as thus constructed.

That the introduction of these improvements has been appreciated by the trade is proved by the fact that the makers have recently furnished with it a considerable number of mills both at home and abroad, and have orders in hand for fitting up four or five mills.

The makers will be pleased to enter into communications with gentlemen or firms desiring further information, and may be addressed as above.

**THE CALICO PRINTERS' ASSOCIATION.**—The following is a copy of a circular which has been issued this week by various firms of calico printers to their customers:—"Dear sir,—In accordance with a resolution passed by the Calico Printers' Association, we beg to intimate to you that all orders placed on or after the 1st September next will be charged by the yard on the printed lengths."

combined with their over-brilliance and want of softness, is daily making them less and less popular." How it may be in India cannot properly be gauged here, but in England and on the Continent coal-tar dyes have taken a place of their own, having displaced many of the less permanent natural dyestuffs, such as madder, safflower, turmeric, cochineal, and while not displacing logwood, cutch, indigo, fustic, and others, yet they have prevented the consumption from growing with the growth of the dyeing trade, and now it is doubtful whether an English or Continental dyer would care to go back to the old dyestuffs. Dr. Watt says that the coal-tar dyes have had a destructive effect on the indigenous dyeing industries, and have depraved the tastes of the people. "The soft delicacy and harmony of colour which formerly characterised the Indian fabrics have to an appalling extent given place to the brilliant and staring hues of the coal-tar dyes," a feature which does not meet with the approval of Dr. Watt, who would like to see them consigned to limbo, and the old-fashioned dyestuffs come into use again. This, it can safely be prophesied, will not happen. Coal-tar colours have come to stay, and their introduction has been a source of benefit, as



opening up new shades and effects of colour not previously obtainable. As to the soft delicacy and harmony of colour in Indian fabrics, the less said about that point the better. Certainly harmony of colour and delicacy of tints can be obtained equally well from coal-tar as from natural dyestuffs, and if, with the introduction of the newer colours, the Indian dyer and weaver learns something about designing, so much the better will it be for him and his customers.

#### GUM ARABIC AND GUM SENEGAL.

Gum arabic is frequently adulterated with gum senegal, the latter being often substituted for the former. When the gum is not powdered the appearance shews which variety is present. Gum arabic forms round or irregular masses, varying from colourless to brown shades, which reflect light strongly, and have the appearance of being crystalline. Gum senegal is usually colourless or pale yellow, with a surface resembling ground glass, and the pieces are more cylindrical or elongated in shape, although it is occasionally met with in rounded masses.

Both gums dissolve almost completely, only small particles of woody fibre remaining undissolved. These are usually of a red colour in the case of gum arabic, but black in gum senegal. Other gums such as cherry only partially dissolve and give a gelatinous residue.

With potassium hydroxide and a few drops of copper sulphate, both gums give a blue precipitate, which, in the case of gum arabic, is larger in quantity, coherent, and rises to the surface, while in gum senegal it is more flocculent, and remains diffused in the liquid. The precipitates are only slightly soluble on heating, and are not reduced even by boiling. Dextrin yields a similar precipitate easily soluble on warming, and which is completely reduced on boiling for some time. On prolonged heating with dilute potassium hydrate, solutions of gum arabic and of dextrin become amber coloured. Those of senegal are only slightly coloured. Mixtures of gum arabic and senegal behave to the copper test like senegal alone, but with the potassium hydrate they assume the amber colour. Mixtures of dextrin with either gum behave like gum arabic alone with the copper test, and if the amount of dextrin is not too small, reduction takes place on boiling. When only small quantities of dextrin are present, the copper precipitate may after warming be filtered, and the filtrate boiled, when reduction will take place. When all three bodies are present the precipitate should be washed, dissolved in dilute hydrochloric acid, and a large excess of alcohol added. The precipitated gum is allowed to settle for a day, washed with alcohol, dried and examined as above.

Gum arabic may be examined as follows:—When the powdered substance is treated with lukewarm water, a gelatinous residue indicates admixture with some other gums than gum senegal. The solution is tested by the copper test, warmed and filtered, the filtrate being boiled to test for dextrin.

#### CHINESE METHODS OF DYEING.

In the *Chem. Ind.* is a paper on the above subject which contains points of interest to dyers, although they have not much practical value. The Chinese dye yellow by using the bark of a tree known locally as *huang pei* (*Pterocarpus flavus*). The colouring matter is extracted from the bark by boiling, and the solution is used for dyeing. Silk is first softened in boiling water, then immersed in the colour solution and then dried. The colour is not fast to boiling. Cotton is first worked in a liquor, prepared from meizu plums by steeping them in water for several days. Then after the cotton has been worked in this, the solution of colouring matter is added, and the cotton repeatedly immersed until it has acquired the desired shade; sometimes as many as 80 immersions are required. The cotton is dried in the shade, the colour evidently being fugitive if dried in the light.

*Teng huang* (gamboge) finds employment in

printing, and but rarely in dyeing. The bark of *Berberis thunbergii* (*hoiagpei*), wood of *Derrilla versicolor* (*hang low*), Turmeric (*kiang huang*), *Rhamnesia tinensis* (*tihsuan*), and the buds of *Sophora Japonica* (*hua mi*) are also largely employed for dyeing yellow.

Indigo is used for dyeing blue, the vats being prepared by gently heating for some time a mixture of indigo, oat and rice refuse, and lime.

Green is dyed on silk by first mordanting in alum, dyeing yellow with a product known as *huoami*. Then dyeing in an indigo vat, on cotton, the operations are reversed. Blue is first dyed with indigo, then the cotton is mordanted with alum and then it is dyed yellow.

Reds are dyed with safflower, sapanwood, sanderswood, madder, and the roots of *Lithospermum erythroxylon*.

Brown is dyed on cotton and silk by first blueing with indigo, then treating with vermilion and sapan wood.

Grey is got by dyeing blue cotton or silk with nut galls from the *Rhus semialata*.

Black is got from the leaves and husks of *Mimosa ferose*, gall nuts and copperas.

#### BLEACHING WITH HYDROGEN PEROXIDE.

Horace Kschlin has given a great deal of attention to the use of hydrogen peroxide as a bleaching agent, and at the late Paris Exhibition he shewed fabrics bleached by it and which were of a satisfactory white colour. To the *Agenda du Chimiste* he has communicated the following details of the latest methods he uses:—

COTTON.—Lay down the tissues in cold sulphuric acid of about 3° Tw. until thoroughly impregnated. Then take up, allow to lie in heaps until the next day, wash well, and boil for six hours with 1,000 litres of water, 10 kilos. dry caustic soda 72%, 30 kilos. soap, 50 litres of hydrogen peroxide 13 vol., and 8 kilos. calcined magnesia. These quantities are sufficient for five pieces of 100 metres each. After washing, sour through sulphuric acid as before, wash again and dry. The white thus obtained is finer than that obtainable by the old process, but more expensive, on account of the price of the hydrogen peroxide; but still it may be employed for fine goods which require bleaching quickly.

WOOL.—Steep the wool in hydrogen peroxide to which one-fourth of its volume of silicate of soda of 40° Tw. has been added, and water according to the degree of whiteness required. By adding a quantity of water equal to that of the peroxide used, a white is obtained as pure as the corresponding white on cotton. This is not usually required, and wool is always left with a slightly yellowish tone. To get this commercial white a bath of three to ten litres of water, 1 litre of peroxide, 12 vols., and  $\frac{1}{2}$  litre of silicate of soda 40° Tw. is made. The pieces are laid down in it for 24 hours, taken up, squeezed, washed, and laid down in bisulphite of soda diluted with 1–10 parts of water according to the quality of the white desired. Afterwards allow to lie again for 24 hours, then wash and dry.

SILK.—Boil the silk for 5–6 hours in the same mixture as for cotton, leaving out the caustic soda. Magnesia gives better results than an addition of ammonia to the bath of peroxide, which is the method usually followed.

PRIMULINE YELLOW.—A new colour is obtained from primuline by treating it with bromide of ethyl and carbonate of soda for some hours, by which means it becomes alkylated, and the new product dyes cotton direct fine shades of greenish yellow.

SALMON RED is a new direct dyeing colouring matter, which has lately been placed on the market. It is prepared by taking 15 parts of paramido acetanilide diazotising, combining with 31 parts of sodium naphthionate, then by heating with caustic soda, the acetic acid in the compound is split off. Afterwards phosgene gas is allowed to act on it, and the colouring matter is formed. It has the formula  $\text{CO}(\text{N}(\text{C}_6\text{H}_5)_2(\text{N}_2)_2(\text{C}_{10}\text{H}_7\text{NH}_2\text{SO}_3\text{Na})_2$ , and forms a brownish red powder, soluble in water and alcohol. It dyes cotton in a soap bath, the tints varying from a fine salmon or flesh colour to orange brown. It will find most extensive use in producing salmon or flesh tints, as these are particularly fine, but the deep shades are not so satisfactory.

#### BLACK ON MIXED WOOL 35% AND COTTON 65% FABRICS.

For 100 lb. goods. Mordant the wool by boiling in

1½ lb. bichromate of potash.

2 lb. tartar.

Wash and dye in a bath of

7 lb. logwood extract, 51° Tw.,

¼ lb. fustic extract, 51° Tw.

Then mordant the cotton in the cold with

10 lb. sumach extract,

and take through a bath of

4 pints nitrate of iron.

Wash; dye in a cold bath with

10 lb. logwood extract, 51° Tw.

sadden with

2 lb. sulphate of iron.

Wash.

Second Process.—First mordant the cotton cold with sumach and nitrate of iron, using the same weights as above. Then mordant the wool with bichromate of potash. Wash and dye with 25 lb. logwood extract. Enter the goods cold, bring gradually to boil, and boil for one hour. Wash.

Third Process.—Prepare a dyebath with

75 lb. logwood extract,

5 lb. copper sulphate,

5 lb. soda.

Enter the goods at the boil, and boil for three hours. Wash and dry.

#### DYEING HEAVY WOOLLEN GOODS.

Complaint is frequently made that heavy woollen piece goods are insufficiently dyed since the introduction of new methods, the proper employment of which has not been learned by the dyer. Thus it often happens, in the case of old and well tried dyestuffs, with which the dyer has worked for years, that he is left in the lurch, and his study and endeavour to ascertain the why and wherefore of defective results generally ends by making matters still worse. Defects are noticed oftenest in indigo blue piece-dyed goods, especially when dyed in the hydrosulphite vat. The evil, however, is not due to the vat, but to the dyer, who does not keep it sufficiently alkaline. If it becomes noticeable in a new vat, it is best to add soda or ammonia at once. The reason is obvious. The reduced indigo white does not dissolve perfectly in water, not possessing a certain quantity of alkali. It is found in suspension in the vat liquor, in consequence of which it does not penetrate sufficiently into the cloth, which acts as a filter, so that it is not dyed through the pigment remaining upon the surface. If so much alkali is present that all the reduced indigo white is dissolved, it assists the vat liquor in surrendering the same quantity of indigo white to the interior as it did to the surface of the cloth.

To the dye-stuffs which penetrate with difficulty into thick fabrics belong nearly all the alizarines, as well as the azo, or so-called mixed azo, dyestuffs. The affinity of the latter for the animal fibre is very great under certain conditions. The most important of these is that there must be an excess of acid; the second is heat. An excess of acid (we refer here principally to sulphuric acid) alone suffices to fix the dye-stuff in aqueous solution when cold upon the fibre. Heat alone is not sufficient to accomplish this. These conditions, well known already, furnish us with means for solving the problem of how to cause the diazo dyestuffs to penetrate. They are chiefly known in commerce as soda salts. When dyeing with them it is necessary before everything else to liberate the dye acid, and so much of an excess of sulphuric acid must be added so as to dull certain amido combinations contained in the wool fibre, which hinder the operation of dyeing. The process of dyeing can take place only when this has been done. If the pieces are boiled when this has been done, if the pieces are boiled with the aqueous solution of the soda salts of the corresponding dyestuffs, no colour will be obtained, even after continuing the boiling for hours. The goods treated in this manner contain only so much dyestuff as the water contains which was absorbed and retained by the wool fibre. The opposite effect can be observed best when trying the experiment with an excess of sulphuric acid. The dye bath is in this case exhausted very readily, and becomes almost colourless. The pieces treated under these conditions, however, are not dyed through. Better results are obtained by liberating first a part of the dye acid with a small quantity of sulphuric acid and boiling the pieces



again in the bath. This makes it possible for the liberated dye acid itself to neutralise the amido combinations of the wool, and little by little deposits the dye upon the fibre. By this treatment, periodically repeating the addition of sulphuric acid to the dye bath, the dyestuff fixes itself gradually, and, if sufficient time is given, it gradually penetrates into the body of the cloth.

Wherever it is possible the dyer should work with concentrated baths if he wishes to employ the diazo dyestuffs. The exact quantity of the sulphuric acid to be added, however, differs for every make of dyestuff, and is best determined by experiment. The several dyestuffs also vary too much in their strength and the quality of adulterants contained (Glauber's salt and dextrine) to permit of fixed rules for their use. The concentrated baths cause the dyestuff to penetrate at once into the body of the cloth. Enter at boiling temperature and keep at this temperature for thirty minutes. The bath may then be diluted and acidulated gradually. It is true the use of sulphuric acid in these cases has this disadvantage, that an undesirable excess of it may be added, especially at the commencement of the operation, if the dyer is not conversant with its strength. It is better for him, therefore, to use bisulphate of soda, if he wishes to be certain. Excellent results are also obtained with purified tartar, which, as an acid salt, liberates the dye acid easily. Its general employment, however, is barred by its high price. Another circumstance, which makes its usefulness in this case somewhat doubtful, is the presence of lime salts, which are seldom absent in the highly refined article. As a result the diazo dyestuffs are precipitated as lime salts, and do not enter into the dyeing operation, but become a total loss.

It is also well to specify a means of preventing the unduly rapid fixation of the diazo dyestuffs, so as to give time to the free dye acid for penetrating into the stuff. This is an addition of acetic acid, together with Glauber's salt. The latter is for the purpose of raising the boiling temperature. The acetic acid acts as a neutralising agent of the above-mentioned amido combinations. It liberates the dye acid at the same time. Fill the bath three-quarters full, boil and add the dyestuff, as well as 20 per cent. of the weight of the stuff of Glauber's salts. In this solution turn the goods for fifteen minutes, and gradually pour at very short intervals 4 per cent. of acetic acid into the dye bath. The acid liquor employed must at the least contain 30 per cent. of hydrated acetic acid. By the continued boiling, which may last for one hour, the colour develops slowly upon the fibre. The bath is thus exhausted gradually, which is very desirable. When the bath appears almost colourless, an addition of 1 per cent. of sulphuric acid is sufficient to fix the dyestuff upon the fibre, and to exhaust the bath completely.

The alizarine dyes, which at the present time occupy so important a place in the dye house, offer great difficulties when used for dyeing heavy woollen fabrics, especially the alizarine blue. And yet the treatment of this dyestuff is very simple. Let the operator adhere closely to the directions of the manufacturer. Satisfactory results are obtained only with alizarine blue S—that is, its bisulphite combinations. Clean the piece very carefully, and then mordant at once with 3 per cent. bichromate and 2½ per cent. tartar. For alizarine blue, pay strict attention to having the tartar as free from lime as possible, because this dye will never produce satisfactory results where lime salts are present. Boil in the mordant for 1½ hours, never less than 1 hour. The goods may without any danger be entered into the boiling mordant. After mordanting, wash thoroughly and dye on the same day. The dyeing may be done in such a manner that the dye kettle is half filled with water. The alizarine blue, dissolved in water and strained, is then added, and after this the acetic acid. The liquor, when entering, must be at 122° F. The piece is then run for 45 minutes in the half-filled kettle, during which the temperature is raised from 149° to 155° F. Do not raise it beyond this, however, because the bisulphite combination of the blue dissociates at 167° F., and can then no longer penetrate the fabric. After the treatment of 45 minutes in the manner indicated, water is gradually let into the kettle, and slowly raised to boiling. The dyestuff develops in its greatest beauty only at boiling temperature.

It is in all cases advisable to commence the dyeing in concentrated baths only at a low temperature, if good results are expected. The presence of lime salts is required only by alizarine red and orange. If a pure red is desired, see that in the mordanting and dyeing with alizarine red no iron salts are present. If there should be, they may be removed by an addition of sumac and skimming off the mordanting and dyeing bath.—*Manufacturers' Review* (U.S.A.).

CERTAIN azo colours, such as cloth red, cloth orange, etc., are dyed on chrome-mordanted wool. It is customary to mordant the wool first, but it has recently been proposed to first dye in a bath of the dyestuff, oxalic acid, and Glauber's salt, entering at 90 degrees F., and raising to the boil, dyeing for three-quarters of an hour at that temperature. Then wring, and enter into a hot bath of bichromate of potash and mordant for half-an-hour at the boil. Darker and faster shades are thus obtained.

ANTHRACENE YELLOW is a new product now being sold on the Continent for dyeing wool, and which gives shades fast to light, air, and washing, and does not bleed into the white on fulling. The wool is first mordanted with bichromate of potash and tartar, then dyed with the colour and acetic acid, when olive shades of yellow are obtained.

ARNFIELD'S improvement in dyeing apparatus refers more particularly to that type in which a number of tanks arranged in a circle and the hanks of yarn are carried from one to the other by revolving radial arms. In these the hanks when passing from one tank to the other were drawn over the edges of the tanks. This is liable to cause damage. In the new improvement a simple contrivance is arranged by means of which the hanks are lifted as they pass from one tank to the other.

THE import of dyewoods into Havre has decreased considerably during 1889. This is partly due to the fact that Hayti, from whence a large quantity is obtained, has been in a very disturbed state, and as the timber on the coast has been exhausted, it is now to be got from the interior and the difficulties of transport are enormous. Another reason is that a large part of the Havre trade in dyewood extracts has been done with Russia, and the Russian Customs duty on these has been considerably increased lately, with the result that three firms have built extracting works at Riga, and of course receive their raw materials direct.

A NEW RED which will dye cotton direct shades rather yellower than Congo or benzopurpurine has recently been patented; this is produced from a new base named orthometta toldine with sodium naphthionate. It has been generally thought that the meta isomers of benzidine, the base of Congo red, or of toldine, the base of benzopurpurine would not yield technically useful products; but the above has recently been patented although the product itself is not yet on the market. The provisional specification describes a new base, meta methyl benzidine, but in the complete specification nothing is said of this, so presumably it does not yield useful colouring matters.

## News in Brief,

FROM LOCAL CORRESPONDENTS AND CONTEMPORARIES.

### ENGLAND.

#### Astley.

At the Astley Mill (Messrs. T. and C. H. Arrow-smith) a change has been made which, it is hoped, will be for the better. Messrs. J. Clegg (agent to Messrs. Crighton and Sons, machinists, Manchester), and W. Longbottom, of Oldham, have been elected to the directorate; Mr. William Grundy, of Astley, has been appointed manager over the weaving department; Mr. L. Tattersall has been appointed carder. In order to see if greater success can be met with the company have commenced to supply tradesmen in the district around Liverpool and Manchester with twills and cords and velvets, their agent for dyed stuffs being Mr. J. H. Grundy. The weaving of twills for tailors at this mill is only of recent date. It is expected that in the course of two months about 90 looms, which have been stopped for a considerable time, will be again set going.

#### Blackburn.

The workpeople of Messrs. J. and J. A. Porter, Greenbank Mill, have presented their late manager, Mr. A. Smith, with a gold watch.

On Tuesday work was re-commenced at Messrs. T. and J. E. Fielding's Belle Vue Mill (650 looms), which has been closed since the holidays while undergoing extensive alterations.

The marriage of Miss Elizabeth Dugdale, eldest daughter of Mr. Joseph Dugdale, of the firm of Messrs. John Dugdale and Sons, manufacturers and machinists, to Mr. Walter Illingworth, of Whalley, was solemnized on Wednesday at the James-street Congregational Chapel.

A quarterly meeting of the Blackburn Trades' Council was held at the Weavers' Offices, Clayton-street, on Tuesday night. The question of altering the holidays so as to accommodate all branches of industry in the town was introduced by the chairman (Mr. A. Cottam). The secretary stated the suggestions of the Executive, which were that the recognised holidays should be New Year's Day, Good Friday, Easter Saturday (giving up Easter Monday), Whit-Monday and Tuesday, the four days following the first Friday after the August Bank Holiday (instead of the days in July), and Christmas Day. This would give an additional day. The Chairman said that, so far as the employes in the textile trade were concerned, the greatest difficulty they would have to contend with would be getting Whit-Monday and Tuesday in addition to the summer holidays. It was eventually decided to forward the recommendations of the Executive to the different societies affiliated with the Council for consideration, and these should report to the next meeting of the Council, when a settlement will probably be arrived at. Mr. Robert Walkden, of the Tape Sizers' Association, was appointed secretary in the place of the late Mr. T. Lewis.

A special meeting of the Blackburn Operative Spinners' Association was held on Wednesday night, in the Spinners' Institute, to consider the question of the infusion of steam into the spinning-rooms of Mr. Joseph Dugdale's Paradise Mill. The meeting was well attended, all the mills in Blackburn, and 1,100 members, being represented. It is complained that steaming in spinning-rooms is much more reprehensible and injurious to health than in weaving sheds, the temperature of the former being naturally higher. The spinners have also reported to their Association that an unhealthy smell is caused by the steam, and that it increases their work by damping their rollers and bobbins. Many of the members spoke against the innovation, and the following resolution was passed unanimously:—"That, in the opinion of this meeting, the question of infusing steam in any spinning-room is entirely against the health of the spinners; that their health should be considered in the first place, and looking at it in every possible way we have decided objection to the spinners working under the system, and this meeting fully empowers the executive council to take such steps as they deem best to stop steaming in spinning-rooms." It was also resolved that the spinners at Paradise Mill be put under notice if the firm insist on infusing steam into their spinning-rooms. We understand that it is usual in America to steam spinning-rooms, but it is alleged that the introduction of the custom here is unnecessary, owing to the different climatic conditions.—*Lancashire Evening Express*.

#### Burnley.

A Corporation sub-committee had before them on Monday the draft scheme adopted by the School Board and directors of the Mechanics' Institute in reference to technical education. It was decided to obtain further information on the subject, the Borough Surveyor in the meantime to report on the stability of the old municipal buildings, which it is suggested should be used as a technical school.

On Monday, Mr. Rawlinson, the masters' secretary, had an interview with the representatives of the weavers in reference to the holidays for next year, now that the question has been settled for the present summer. It was arranged to hold a conference early in the year to consider the whole matter, and the advisability of having the fair holidays in August instead of July.

Messrs. Benjamin Thornber and Sons, of Danes House Mills, Burnley, have just bought Old Hall Shed, which they intend to enlarge. When completed it will hold about 600 new looms, which they have ordered from Messrs. Pemberton and Co., sole makers of the late Thomas Sagar's looms. When this extension is finished the shed will contain over 2,400 looms running on Sagar's principle. The late occupant of Old Hall Shed was Mr. James Osbaldeston, who is going into Cliviger Shed. Messrs. Pemberton and Co. have also just completed an order for 633 looms for Messrs. Foulds, Thornber and Co., of Bankfield Shed.

#### Clitheroe.

Neville Mill, Clitheroe, was sold on Wednesday by Mr. J. Birtwistle, at the Old Bull Hotel, Blackburn, for £9,000. There were numerous bidders, representatives of the cotton trade in Blackburn and the whole of the surrounding districts being present. The bidding was finally between Mr. Micah Birtwistle and Mr. John Southworth (the Mayor of Clitheroe), the latter becoming the purchaser. The mill contains no looms at present, but is prepared for 1,200. The site covers 15,470 square yards, and the property is subject to a ground rent of £32 4s. 8d.



## Church.

Messrs. Edward Rushton and Sons offered for sale on Wednesday, at Blackburn, Primrose Mill, Church, containing 1,000 looms. The premises cover 6,756 square yards, and are fitted with cotton manufacturing implements of a modern design. The mill is subject to a yearly rent of £38 16s. 3d. The sale was well attended, but no bids were made, and the property was declared withdrawn at £10,500.

## Cleckheaton.

A meeting of the Chamber of Commerce was held on Wednesday evening, Mr. B. H. Goldthorp (president) in the chair. Two communications from the Mayor of Sheffield and the chairman of a public meeting held there, both of which had been forwarded to the Cleckheaton Local Board, were submitted to the Chamber. The communications related to the opposition which had been set on foot in Sheffield to the McKinley Bill, and it was asked that the Chamber would take steps to oppose the Bill. The President said he did not think that any good had been done by the meetings in Sheffield. He believed that harm had been done. The action of Sheffield had confirmed the Americans in the course they were pursuing. The Bill seemed to give certain parties in America the opportunity of twisting the tail of the British lion, and they were going to give it a twist. Instead of doing good, protestations encouraged the Americans to pursue the policy to which they had set themselves. Mr. Joseph Law said he had spoken to a gentleman well acquainted with the subject, and he had expressed a similar opinion to the Chairman. He (the speaker) thought it would be best to lie silently aside, and see what the American Free-traders intended to do. The work of converting American Protectionists could be better done by Free-traders on the other side. The men who were pushing the McKinley Bill were paid for doing it, and were bound to shew something for what they received. In many branches of English manufactures business with America would be entirely excluded. He did not know what the opinion of his people (Messrs. S. Law and Sons, Limited) might be, but he for one should be disposed if they could not make a profit here, to take some of their machinery to America.—Mr. Thornton said the more they protested the more the promoters would be determined to carry the Bill through. The President said they must either allow the Bill to go without protest or adopt a retaliatory policy. In the case of America he thought no one would believe that to be a wise course. Retaliation would inflict more injury upon ourselves than the Americans.—Mr. S. Reeve was in favour of a protest, but it should be made to the British Government, in order that the subject might be kept before it.—Mr. J. W. Wadsworth was of opinion that most good would be done by strengthening the hands of the Free-trade party in the States. Those who had noticed the discussions on the tariffs would have come to the conclusion that there had been more strenuous internal opposition to this Bill than any previous Customs Bill.—Mr. J. Ellis observed that if the Americans excluded our goods we could not continue to be their customers. There would soon be no gold to pay them. The result would be that our trade and custom would have to go elsewhere. On the motion of Mr. J. W. Wadsworth, seconded by Mr. Ellis, it was resolved to simply acknowledge the letters from Sheffield. An amendment by Mr. S. Reeve to support the memorial found no second.

## Cornholme.

Messrs. J. Roberts and Son have sold off all their machinery and the shed is now unoccupied. There is no prospect of its being re-let. Many of the best operatives have obtained work at other mills, but in so doing have displaced the inferior workers who were engaged, with the result that an equal number of operatives in the valley are unemployed. This disaster may be set down as the fruit of the incessant interference of the local weavers' association. Messrs. Roberts and Son's experience in this respect will hardly be encouraging to other people to try Cornholme.

## Dewsbury.

The annual meeting of the subscribers to the Dewsbury and District Technical School took place on Thursday evening in the new building, and in the absence of the president (Alderman T. B. Fox), Mr. Alfred Fletcher presided. Reports by the Committee shewed that the cost of the new school is about £9,000, and that there is a deficit of £1,183. Comparatively few of the manufacturers and merchants of the town and district had subscribed so far; but it was hoped they would do so, and clear the institution from debt. The report of the Classes Committee was most encouraging, the number of students being over 680, and the results obtained at the recent science and art examinations very

gratifying. It was expected that with the ample accommodation afforded by the new building there would be a further increase, especially as the curriculum had been extended. The reports were adopted, after which Alderman T. B. Fox was re-elected president; Alderman J. Walker and Mr. A. Fletcher, vice-presidents; Mr. W. H. Chadwick, treasurer; Mr. J. Myers, jun., hon. sec.; and the following were re-appointed Governors—viz., Messrs. Chaley Fox, C. B. Habkirk, M. Oldroyd, M.P., F. W. Reuss, and Seth Ward.

The "pole-end" grievance was discussed at a meeting of Messrs. France's weavers held on Saturday, and a compromise, which now disposes of this grievance throughout the trade, was effected. It seems that the custom of having young men as "pole-enders" had been imported from the firm of Messrs. Kelley (now defunct), of Heckmondwike, but with a view of obviating the creation of too much labour by means of the apprentice system, there has been an effort to put the custom down. At the meeting on Saturday Mr. James Farnhill (Dewsbury) occupied the chair, and the trade executive was represented by Messrs. John Taylor (secretary), A. Ainsworth, and P. Hardiman. After the subject had been fully discussed, a resolution was unanimously passed making the following provisions:—That on and after the 18th inst. "pole-enders" are to be placed on equal terms with the weavers; that present "pole-enders" under twenty-one years of age are to be placed on equal terms with the weavers on completion of their apprenticeship; and that no new apprentices are to be taken on in looms three yards wide and upwards.

## Farnworth.

Nearly all the mills here were closed on Saturday and Monday last, the occasion being the annual holiday, as fixed by the Operatives' Union a few months ago.

## Hadfield.

After negotiations extending over 16 months, the great majority of the millowners in the Hadfield district have acceded to the plea of the cotton operatives for the adoption of the indicator to determine the quantity of work performed, and in only one instance have the owners closed a mill rather than grant the desire of their "hands." In this case, however, a speedy settlement of the question is expected.

## Hebden Bridge.

Messrs. Crossley Bros., Hamingroyd Works, closed their shed last week, and commenced to remove their looms on Monday to Foster Mill.

Acro Mill, run by Messrs. James Hoyle, Limited, closed last week for a fortnight, for the purpose of putting in a new high-pressure boiler and to repair the engine.

## Kidderminster.

Messrs. Woodward, Grosvenor, and Co., Limited, have appointed Mr. Wm. Killingbeck, late of the Childema Carpet Co., Limited, to represent them on the Continent, and several other changes are contemplated by them "on the road."

Mr. G. M. Whittall, who has purchased the freeholds belonging to the late firm, informs his customers that the whole of the office and works' staff will continue with him. Mr. Alfred Rome continues on the North ground on his behalf, and Mr. W. Whitehead, of Toronto, will represent him in the Canadian markets.

Mr. Edward Smith (R. Smith and Sons, or now the Carpet Manufacturing Co., Limited,) arrived home from America rather earlier than he was expected. It is pretty well known that the main object of his visit thither was to further inspect a new loom—the Crompton Moquette. With this loom Mr. Smith seems now to be more than satisfied, and is confident that it must occupy an important position in the future history of the carpet trade. It is understood that arrangements are now complete whereby a number of them will very soon be erected and at work in Kidderminster.

## Littleborough.

Messrs. E. and J. Mason are giving up cotton spinning at Albion Mills, Littleborough.

## Leicester.

On Friday morning of last week a wall of a factory in Framland-street, where a serious fire occurred some time ago, fell on an adjoining warehouse occupied by Mr. Smith, elastic web manufacturer, smashing in the roof and destroying the machinery. Mr. Smith's brother was buried under a falling loom and seriously injured.

## Manchester.

Early on Sunday morning a serious conflagration occurred at the large mill of Messrs. W. Holland and Sons, Miles Plaiting. A man in the engine-house upset an oil lamp, and in a very short time the

building, which was of large dimensions, was wrapped in flames. The greater part of the Manchester Fire Brigade were engaged in subduing the fire, and with the assistance of the workpeople, they saved a portion of the building, but not before damage to the amount of about £120,000 had been caused. The mill is understood to have been insured. Messrs. Holland were employing about 1,000 hands, and of these 700 are thrown out of work. The remainder are employed in the worsted spinning factory, which is in a block some little distance from that in which the fire occurred. It will be some weeks before the engines in the spinning department are again started, so as to enable work to be recommenced in those rooms which remain more or less intact.

## Nottingham.

A Conference of master bleachers, dyers, millers, and finishers was held here on Monday to consider the present state and condition of trade and the action to be taken in consequence of the Trimmers' Union having given notice that, unless the employers consented to accept the revised price list submitted to them, the men will cease work on the 28th inst. Two firms are reported to have accepted the list, but at present the majority are not prepared to do so unless they can secure an advance in their own prices. The men seem under the impression that there will be no necessity to strike as the masters will concede their demands.

## New Bastord.

Early on Sunday morning a fire broke out at the works of Messrs. Towson and Weldon, dyers and bleachers. The damage is roughly estimated at three or four hundred pounds, which is partially covered by insurance.

## Oldham.

Messrs. Platt Bros. have obtained the order for the machinery required by the Pine Mill Company.

Mr. Wm. Thompson, of Shaw, has patented an improved means for piecing the ends of driving straps or belts.

Messrs. Asa Lees and Company are supplying the machinery required by the Ryecroft Mills Company, Ashton.

Sprinklers have been placed in the two mills belonging to Messrs. Newton, at Waterhead. They are of the "Witter" make.

Mr. Robert Stocks, of the Thornham Spinning Company, has been appointed mule overlooker at the Glebe Old Mill, Hollinwood.

Victoria Mill, Hollinwood, is being stopped a few weeks to allow of repairs in connection with the steam engines, and also the putting in of new boilers.

It is stated that a departure from the plans has been made in the building of the mill for the Earl Mill Company, by which it is said the arrangements will be considerably improved.

Mr. W. H. Wrigley, manager at the Industry Mill of Messrs. Bagley and Wright, has been appointed manager at the Oldham and Lees Spinning Company, vacated by Mr. Robertson, who, as we have previously stated, is in America.

The damage resulting from the fire at Shawside Mills is now regarded to be more serious than was at first calculated. It has since been ascertained that considerable damage was done by water to the stock, and altogether it is estimated that the loss will be between £3,000 and £4,000.

On Wednesday, several teeth in the fly-wheel and pinion wheel of the steam-engine of the Broadway Spinning Company were found in a precarious condition. In consequence the mill is closed, and is expected to remain so for a few weeks, unless some temporary arrangement can be made.

Steps are being taken to form a company for the purpose of taking over the Neville-street Mill, in the possession of Mr. Hilton Greaves. This mill was formerly owned and worked by the Abbey Spinning Company, but it came to grief, the premises falling into the hands of Mr. Greaves as the mortgagee. It is stated that the share capital in the new company will be held by only a few persons.

Advantage will be taken of the long holiday at the Wakes by having repairs carried out in connection with the mills and workshops in the town. The directors of the "limiteds" are very mindful in matters of this kind, for they know it is only by keeping the machinery up to the mark that they can expect to hold their position in the keen yarn competition which exists now-a-days.

The death is announced of Mr. Edward Collinge, of the firm of Messrs. Jas. Collinge and Sons, cotton spinners and manufacturers, Commercial Mills, Glodwick-road, which took place on Thursday morning at Bowness, Windermere, whither he left about a fortnight ago, when he was in the enjoyment of his usual health. Deceased was also a director of



the Oldham Joint Stock Bank, and was a justice of the peace, being elevated to the magistrical bench in 1874. He was 48 years of age, and leaves a widow and seven children.

The Royal Mill Company, Limited, has been registered with a capital of £80,000, in 8,000 shares of £10 each, to acquire the Royal Mills, Rochdale-road, Oldham. The first subscribers are—Messrs. George Buckley, Lambert Reddaway, Thomas Watson, Thomas Winstanley, W. H. Stacey, J. W. T. Cocker, and David Grundy, all of Oldham. The number of directors is not to be less than five nor more than seven. The remuneration of directors is fixed at £140 for each full year, divisible, the qualification being 100 shares.

At the Borough Police-court, on Thursday, Dr. Patterson, medical officer of health for the Chadderton Local Board district, summoned, in his capacity as a property owner in the Borough of Oldham, the Coldhurst Spinning Company, Werneth Spinning Company, and Messrs. Abraham Scott and Sons (Osborne Mills), for having caused nuisances by the emission of black smoke. However, the magistrates, after hearing evidence, deferred giving any decision for a month, the Chairman remarking that they hoped by that time to have no more complaints of any more smoking.

#### Preston.

Mr. Harry Dewhurst, J.P., a junior member of the firm of Messrs. G. and B. Dewhurst, of Cuerden Mills, has returned from his wedding trip in Scotland, and taken up his abode at The Hall, Lostock, in the vicinity of the works.

Mr. Zachariah Maudesley has been appointed to the post of practical demonstrator in weaving at the Harris Institute. He has had considerable experience among fabrics, and has passed in the Honours Grade in Weaving, and in the Ordinary Grade in Spinning. Mr. Maudesley attended the lectures given at the Institute by Mr. Taylor on weaving and by Mr. Hannen on cotton spinning last session.

#### Rochdale.

The Science and Art Department has approved of the proposal of the Town Council of Rochdale to make grants for the promotion of technical education in connection with cotton spinning, cotton weaving, and cloth weaving.

Full time in the cotton and flannel trades has been run for many months, and only in the latter have manufacturers found it necessary to suspend any portion of the machinery. The machine works in the town, with the exception of one or two, have been kept very busy, and have still large orders in hand.

#### Ravensthorpe.

The contract for the erection of Messrs. Hougate's mill has been awarded; it will find employment for a good number of hands. The spinners at Messrs. Hougate and Sons are working day and night.

#### Stockport.

A fire broke out on Thursday afternoon at India Mill, worked by Messrs. Kershaw, Lesse, Sidebottom, and Co. The building, which is eight storeys high, is the largest cotton mill in the borough. The Corporation fire brigade attended, and found the mill brigade already at work. The fire occurred in the mixing room, where there was a large quantity of cotton, and the Corporation steam fire engine played for half an hour ere it was deemed safe to proceed to remove the smouldering mass to an adjoining meadow, a task which occupied till late in the evening. Considerable excitement prevailed on the outbreak of the fire, as the hands had not left the mill. The damage done was considerable. The origin of the fire is unknown.

#### Tyldesley.

The fortnight's notice given by the workpeople employed at Messrs. James Burton and Sons' mills, Tyldesley, expired yesterday, but a satisfactory arrangement was arrived at on Thursday night whereby the hands will continue working for another 14 days. It will be remembered that the spinners have on many occasions complained of bad work. On the 8th inst. they tendered 14 days' notice, and at the same time the employers gave all the warehousemen, weavers, winders, combers, and frame tenters a like period in which to cease work. Since then Mr. J. Fielding, secretary of the Bolton Operative Cotton Spinners' Association, met Mr. Burton, who agreed to reduce the rim one inch in circumference to improve the spinning. The men, however, asked for a reduction of two inches. It was unanimously resolved on Thursday to confirm the arrangement made by Mr. Fielding and the masters on Wednesday, and the hands decided to continue working for another 14 days to afford a fair test of the arrangement—viz., the reduction in speed of the machines, and the increase in the piecework prices until a better quality of work was attained.

## SCOTLAND.

### Dundee.

A meeting of Dundee mill and factory workers was held on Monday night to consider the wages question, when a resolution was carried approving of the action of the Dundee and District Mill and Factory Operatives' Union in giving the workers an opportunity to ask for an advance of wages.

On Thursday week a partial strike of spinners took place in a jute factory in the West End of Dundee. It is stated that the workers have not struck for a rise of wages, but because their foreman has, in their opinion, been wrongfully dismissed, and they insist on his being reinstated. The strikers, consisting of women and girls, paraded some of the streets.

Last week a fire broke out in the preparing department of Balgay Jute Works, occupied by Messrs. P. G. Walker and Son, but it was extinguished speedily, only 40 bales of jute being damaged by fire and water. The loss is covered by insurance. The outbreak is supposed to have been caused by some hard substance passing through a breaker machine and causing a spark, which ignited the jute.

The members of the Calender Workers' Protective Association met at the close of last week. The quarterly report was read and adopted, and a Conciliation Board was appointed, consisting of nine members representing the trade in public and private calenders. The business of the Board will be to settle as far as possible all disputes that may arise from time to time, with a view to avoid strikes. This appointment has been made by the men in accordance with a promise made by them at the settlement of the last dispute.

The Council of the Scottish Mill and Factory Workers' Federal Union met in Dundee on Saturday afternoon, Mr. Thos. Roy, Forfar, the president, in the chair. Representatives were present from Kirkcaldy, Kirriemuir, Arbroath, Forfar, Brechin, and Dundee. A remit from the Kirkcaldy union on the subject of weekly instead of fortnightly payments, and a request for an advance of 5 per cent. in the wages of mill-workers there, was discussed by the Council advising the local union not to promote a strike in the present state of the Kirkcaldy trade, but to continue and increase their efforts to have the system of fortnightly payments amended. Consideration of a dispute as to lappers' wages in Arbroath was deferred, and the secretary was instructed to communicate with the employers in Arbroath who had failed to reply to communications from the union of that town.

The tenters in South Anchor Works, on Thursday week, struck work, their alleged grievances being that extra work has lately had to be done, while no increase has been made on their wages. During the past few days considerable feeling has been manifested by the employes, and when they left off work they congregated at the gates in large numbers, and freely expressed their opinions in favour of the men on strike. No settlement has yet been effected, and it is said attempts have been made to get tenters to fill the vacancies, but without success. All the weavers, except new hands, also came out on strike on Monday morning. They complain that owing to the tenters having left their employment, apprentice tenters have been taken on who at present are quite incapable of doing the work in reasonable time.—On Wednesday morning the weavers returned to work without achieving anything, except, as their president, the Rev. Henry Williamson, stated at a meeting, "in putting their employers to a lot of trouble," for which he asked them to be content!

### Dalmuir.

A meeting of the creditors of C. and W. Paterson and Company, calico printers, Dalmuir Print Works, was held yesterday week in Glasgow. The state of affairs shewed liabilities £7,399 14s. 5d., and net assets £3,591 15s. 5d., the deficiency being £3,807, 19s.

### Hawick.

Messrs. Robert Noble and Company have built a new engine-room, and are having a powerful engine fitted up, the old engine now being too small for their enlarged premises. They are also having a sandstone facing added to their front wall, on which an additional flat is being built. The alteration will effect a great improvement on the appearance of their mill.

### Kirkcaldy.

A large meeting of millworkers was held on Tuesday evening, when the delegate who attended the conference of the Federal Council, held in Dundee (see Dundee news) gave his report. He mentioned that great surprise was expressed at the Conference when it was reported that the wages paid to millworkers in Kirkcaldy

were:—Spinners, 8s. to 8s. 6d.; preparers, 7s. to 7s. 6d.; and that women, for doing two women's work, were only paid from 8s. 6d. to 9s. 4d. The Union viewed with favour the exertions being made by the Kirkcaldy employes to secure an advance of wages, but did not recommend them to strike in the meantime. They, however, were of the opinion that they should continue their agitation for weekly payments. It was agreed to write the employers again upon this matter, and the hope was also expressed that on the improvement which had taken place in trade the employers would also see their way to advance the wages. It was further agreed that everything possible should be done to augment the membership of the Union in the district.

### Langholm.

Messrs. James Scott and Sons, of the Waverley Woollen Mills, have just given their employes, together with the members of their families, an excursion to the Edinburgh Exhibition. A special train was run, and there were 450 passengers. The excursionists also were each presented with a shilling by the firm, the children receiving the same sum. Messrs. Lightbody and Son, manufacturers, also gave their employes a trip to Edinburgh Exhibition, Messrs. Scott's train conveying them.

## Miscellaneous.

### THE WOOLLEN EXPORT TRADE: ITS PAST, PRESENT, AND FUTURE.\*

(Continued from page 99.)

By W. W. WHITEHEAD.

It will naturally be said, where then do all our exports go? My answer must be—to India, China, Japan, the United States, Canada, Australia, and to those countries of our own flesh and blood. These are the markets to which, if you only look at the Board of Trade returns, you will find the bulk of our exports go, and these markets must, in course of nature, become much larger. In 1889 Europe only took 20 millions yards of woollens, leaving 49 millions of yards which were shipped over the deep seas, and in addition to these there were 30 million yards of worsted goods shipped. Then again I refer you to the South American markets, Brazil for instance, one of our best customers, but which, it is to be feared, is entering upon a long round of trouble with her new Republic.

Time will not permit me to go into the present aspects of our export trade as fully as I could wish, but the question may be asked, Are tariffs alone to blame for the falling off in our Continental trade? I think not, and it needs no apology to point out some of the faults with which we may fairly charge ourselves—want of taste, for instance. A woman dressed in a blue gown, violet shawl, and a green bonnet, would naturally provoke the remark, What horrible taste! I have, however, seen in ranges, colours introduced and combined, not, of course, so flagrant as this, but still very glaring. Attention to detail, good dyeing, finishing, and the turning out of good work—all these are often overlooked, because the goods in hand are of such low quality it is not worth while doing them well. The reducing of qualities by insane competition to such an extent that the maker scarcely recognises his cloth when he sees it—these are only a few of the faults; there are many more. My own experience has taught me that when I took a pattern to a maker and asked him to make it for me, I should be met by all kinds of difficulties. There were, of course, exceptions to this, and those makers who made the exceptions and tried their best were the busiest in the slack times. Notably I would mention the manufacturers of Guiseley and Yeadon, who were always willing and anxious, and to them great praise must be given for the manner in which they tried the production of all sorts and conditions of woollen, cloths, both plain and fancy.

In South America we find the Germans making a special study for these markets, and there is no doubt they are the nation who will run us close everywhere. We hear our manufacturers complain of German competition in London, but, obviously, they must produce more

\* A paper read before the Textile Society of the Yorkshire College, Leeds.



tasty, nicer, and cheaper goods than we do otherwise how could they obtain a preference in our own market? It has become quite the regular thing to see what the Germans produce first, and then for our makers to follow. Properly directed technical studies should in course of time obviate this, and tend to produce such workmanship and designs as would lead the world.

Upon the whole then, so far as the present aspects of the export trade are concerned, I think we are about holding our own. In some things, such as worsted coatings, we take the lead, and I cannot see why the makers of this district should not produce goods which will make a name, and, still better, create a demand, rather than be distinguished for the production of meltons at 6d., and "splits" at 3d. This is a fancy age; and if we wish to hold our own in neutral markets, where all meet on an equal footing as regards tariffs, it must be by the continued production of novelties, well studied and adapted for the use of each particular market.

I am leaving with the society several lots of patterns which will serve to illustrate my point. There are mantle cloths from Berlin, made specially for the English market. There are chevots, made specially for the Belgium trade; and there is a South-American collection, made in Gera for the spring trade to the River Plate. The difficulties we have to hold our own and to compete successfully are enormous, but not so enormous that they cannot be overcome by study, intelligence, and a readiness to meet the requirement of the times.

Now, as regards the probable prospects of the export trade, I can only give you my ideas as to what the future may have in store for us, and offer a few suggestions. We complain of the severity of foreign competition in these days. I believe the future will bring a much severer competition, and the race will be all the harder to win. Intelligent, hard-working rivals on every side are striving their utmost to beat us in the neutral markets of the world. It may be—who can tell?—that as the wheels of time revolve, the Continental nations may see the folly of Protection, and open their ports to our goods—if not free, at all events with such a tariff as will permit us to send them our manufactures in return for their own. I would not, however, count too much upon this. You will have noticed that the French treaties expire early in 1892, and from the composition of the Committee appointed in France, and upon which there are two-thirds rank Protectionists, I fear we shall have a hard struggle to obtain a tariff as good as the present one, which is already very bad. I trust our Government will take a firm stand in the matter, and not go cap in hand, as they did in 1881, saying, "Please give us a good treaty; but whatever you do, we shall not alter our position, nor retaliate in either one way or the other."

I am a rank free-trader, but I am not sure whether it would not be a good thing to try another method—in a word, do evil that good may come. I mean, in case the French will not give us a satisfactory tariff, to get back the leverage which we are short of at present; in fact, to obtain again our bargaining power. We must have some power in our hands, if we wish to conclude a fairly satisfactory treaty; and I think it will have to be upon some such lines as these we shall have to work, if we mean to come out of the contest in a respectable way.

Doubtless before long the map of Europe will again be rearranged, and I look forward to the time when we shall see a Christian power, probably Austria, located at Constantinople, and a vast field opened out in that region. There are dreams of Imperial Federation, who can say but they may become a reality, and all the English-speaking colonies be joined to the mother country on one great commercial basis, opening out to our manufacturers such a trade as will enable us to look upon the loss of the Continental trade with equanimity.

Take the United States, where there is already a contest going on between the wool-growers and the manufacturers. These latter demand free wool, as they find in spite of the enormous tariff that they cannot compete with European goods. The result of this is certain to come in

time, if not absolute free trade, something very near it. I am one of those who believe free trade in America would be one of the worst disasters which could happen to this country, probably not in the immediate future, but in a measurable distance of time. Considering that America has everything within herself, minerals, capital, and a go-ahead people, land suitable for the growing of wool, and in course of time rendering her independent of imported wool; considering, also, her immense advantages, the capital and brains which would inevitably go from this country, she would become our principal competitor, and in course of time the whole South American trade, and probably that of China and Japan would be at her feet. Already she is important enough in woolen manufacturing, but hampered as she is with protection, she cannot turn round. The following statistics as to her manufacturing capabilities will be interesting:—

	MILLS.	HANDS.
1850	1,559	39,250
1860	1,673	59,500
1870	3,456	119,900
1880	2,686	161,489

Since 1880 the growth of the woolen industry has probably been more rapid than during any former period. The development has been most strongly marked in the multiplication of establishments for the manufacture of fabrics of worsted or combed wool. The woolen industry of the United States includes the manufacture of every variety of cloth and every kind of article known to man, into which the fleece of the sheep can be manufactured, and much of this material is unsurpassed in all good qualities by the fabrics of any other country. These figures show how largely the woolen industry has increased, and the following extract from one of the U.S. official books, shows that she is fully alive to the future of an export trade, and I have little doubt she will in course of time, probably though not in our time, become the great competitor of this country:

While the volume of our European trade can be increased by well-directed efforts, the trade which should command the most earnest attention of our statesmen and business men is that which exists with our neighbours in South or Central America, Mexico, and the islands south of us. Here is a trade which in 1888 amounted for purchases made by those countries from abroad to upwards of six hundred million dollars, at present monopolised by England, Germany, and France. Of this vast amount the United States secured, in round numbers, only about sixty-nine million dollars; and yet during the same year we paid to these countries over 181 million dollars for their products. That markets contiguous to or within easy reach of us, and justly considered among the most profitable in the world, should have been altogether neglected by the United States, is due more to the indifference manifested by our merchants and manufacturers than to any lack of friendly appreciation of our people or products on the part of our Southern neighbours. It is a reflection on American enterprise that such indifference should exist, and that the trade of these States should be controlled by distant nations. To change this lukewarm sentiment of the past into an aggressive policy of the future, which will find reflection in the helpful acts of the Government in support of better lines of communication, to change the existing conditions of trade so as to secure to the United States a fair share at least of the immense trade of the countries south of us, is the work to which we must pledge our best efforts. The outlook for an increased export trade was never more encouraging. The congress which met in Washington, wherein the representatives of Brazil and the South American Republics exchanged views with our representatives, will doubtless result in the adoption of wise measures for the advancement of trade.

It must be a comfort to us to know that unless the United States move in the direction of free trade, such a development as they look for will be utterly impossible.

(To be continued.)

ACCORDING to a letter from Port Lagos, the crop of cocoons in that district has been exceptionally good. As the cultivation of silk has been neglected for more than 80 years, and the mulberry plantations have been constantly destroyed and replaced with vineyards, the returns are marvellously good under the circumstances.

## THE TREATMENT OF FIBROUS PLANTS.

An interesting problem, and one which promises to have a far-reaching and beneficial effect upon the textile industry generally, is now being worked out in Lambeth, where, in High-street, a factory for the treatment of the various kinds of fibrous plants has been established. It is generally admitted, says the *Times*, that for the last 20 years no really substantial advance has been made as regards actual economy in the preparation of such fibres as flax and hemp, while the splendid fibre of the ricea plant still awaits successful treatment. It is true that many attempts have been made and much money has been spent in endeavouring to give this much-coveted fibre to the world, but up to the present no really practical commercial results have accrued. So with many other fibrous plants, particularly those of the leafy kinds, sufficient attention has not been given to the detailed requirements of each species, and the results are by no means all that can be desired or obtained. It is with a view of testing the various fibre-bearing plants by existing machinery and processes, and of finding out the defective points of treatment and of remedying them, that this model fibre factory has been started. For instance, the utilisation of a certain kind of fibre-bearing plant may have been attempted by some known process of machinery and the attempt may have failed. For want of time, money, or knowledge, or of all three, a useful or even valuable addition to our stock of fibres may so far have been lost. At any rate this is the experience of those connected with the present movement, and it has induced them to take the present step. Samples of fibrous plants of every species can now be submitted for carefully-supervised trial, and if the present machines or processes prove unsuitable in some little detail or other, the defect will be discovered and remedied. In like manner advice will be given as to the best machines and methods of treating fibrous plants, and the opportunity will be afforded of studying the various processes of production, and of acquiring a knowledge of the most scientific methods of preparing fibres. In fact, the present enterprise promises to develop into an important public technical school, for it is proposed to establish branches in textile manufacturing and cognate centres. From a still wider point of view the fibre factory may be regarded as an exhibition and a permanent institution for perfecting machinery and processes relating to the treatment of fibre-bearing plants of every description.

The various processes to be carried out at the model fibre factory, which we have recently been afforded the opportunity of inspecting, comprise the rapid retting and ungumming of fibrous plants; automatic breaking, scutching, combing, and huckling; spinning into simple or mixed yarns; cottonising and woolenising fibres to imitate fine cotton or wool, suitable for the manufacture of various mixed and osea fabrics as well as for fine and costly goods; bleaching and dyeing the same, and the rapid drying of fibres by means of cold air. The factory consists of a spacious warehouse and storeroom for machines and samples, with offices annexed, and a large machinery and operating room, with a laboratory and an engine and boiler house. The chief feature in the operating room is a new machine for dealing more particularly with leaf plants, such as phormium tenax, aloes, agaves, palms, and the like. We saw some phormium tenax put through this machine with great success, and with rapidity and simplicity. Another machine is a scutcher for hemp, flax, ricea, and, in fact, all stem fibres. In this we saw some ricea stems from France easily decorticated without previous soaking or steaming. The wood was well taken out and the fibre left ready for ungumming and subsequent treatment. In the plants thus treated the fibre is got out mechanically, and is then treated according to requirement, by ungumming, bleaching, and preparing for spinning. There is also a spinning machine in order to test the various fibres in this respect, and to see how they are likely to meet the requirements of a commercial article. Another important improvement is also being introduced at this factory, and that is the rapid retting of flax. The usual method of retting is to soak the flax in water for about three weeks. By the new process this will be effected in about a couple of hours. This quick action is brought about by submitting the flax to the intermittent influence of heat and moisture, which is stated to be very effective and in no way to act prejudicially upon the fibre. The factory is under the direction of Mr. Taylor Burrows, late of Lille, a gentleman who is well known for his experience in the treatment of textile materials. It is to be hoped that the undertaking will receive the support it merits, for it appears to meet a recognised commercial want.



## THE NEW COLOURED WEAVING LIST.

A new standard list of prices for coloured goods has just been arranged, the final settlement having been made by Mr J. Rawlinson, representing the employers, and Mr. T. Birtwistle, on behalf of the operatives. The negotiations have been in progress for a considerable time, and the list, which will come into operation after the first "making-up" day in September next for the new classes of cloth, and for all classes of cloth to which it applies on the first "making-up" day in November, affects over 4,000 coloured goods weavers in Burnley, Colne, Nelson, Brierfield, Trawden, and adjacent places. The following is the list:—

**THE STANDARD.**—The standard upon which the price for plain and striped goods is based is as follows:—Cloth, 28, 29, or 30 inches in width; reed, 52 to 64, both inclusive, or 26 to 32 dents per inch, twends in a dent; length 74 yards of warp, 36 inches to the yard; wefts 16's or any finer counts; price 1½d. per pick. The standard upon which the price for checks is based is 70 yards of warp, 2d. per pick; in all other particulars the same as the standard for plain and striped goods.

**REEDS.**—52 to 64 inclusive, or 26 to 32 dents per inch, two ends in a dent, being taken as the standard. Add: Above 64 to 70, 2 per cent.; above 70 an additional 1 per cent. for each extra dent or two ends per inch. Deduct: Below 52 down to and including 46, 2 per cent.; and below 46 3 per cent., beyond which no further deduction shall be made.

**CLOTH.**—The standard being 28, 29, or 30 inches is reckoned equal. For each inch below 28 ¾ per cent. is to be deducted down to 20 inches, beyond which no further reduction shall be made. Above 30 inches up to and including 36 1 per cent. per inch is to be added; above 36 to 40 1½ per cent., and above 40 2½ per cent. per inch.

**UNDRESSED WARPS.**—Ordinary half beer warps, dyed, sized, or bleached in the warp, to be paid extra as follows:—All one colour, '035 per yard; two colours, white or grey counted, '045 per yard; three colours, white or grey counted, '055 per yard; four colours, white or grey counted, '075 per yard; increasing '02 per yard for each additional colour, selvages not reckoned a colour. Warps wound on so as to avoid crossing or splitting of half beers in weaving to be paid '035 per yard.

**HALF-DRESSED WARPS.**—All warps run through a reed, but neither dressed nor brushed by hand and when broken threads are not found and pieced in the usual way, shall be considered half-dressed warps and paid as follows:—All one colour, '02 per yard; two colours, white or grey not counted, '03 per yard; three colours, white or grey not counted, '04 per yard; four colours, white or grey not counted, '05 per yard.

**COARSE TWIST IN A FINE REED.**—Below 16's in a 68 or finer reed (two threads in a dent), 2 per cent. per count to be added; 14's two-fold yarn, that is 2-28's, to be paid as 16's, and so on in proportion.

**WEFT.**—No addition or deduction to be made for weft finer than 15's; 15's add 2 per cent., 14's add 4 per cent., 13's add 6 per cent., 12's add 8 per cent., 11's add 11 per cent., 10's add 14 per cent., 9's add 18 per cent., 8's add 22 per cent. Hank Weft: Hank weft woven with plain or striped goods from tubes or bobbins shall be paid 5 per cent. extra.

**SHAFT WORK WITH DOBBIES.**—No extra payment shall be made for cloths woven with six or any less number of lifts or treads that can be worked with tappets although dobbies are used. All cloths woven with dobbies that cannot be worked with tappets to be paid extra as follows:—Up to and including 10 lifts or treads, add 10 per cent.; 11 to 14 lifts or treads inclusive, add 14 per cent.; 15 to 18 lifts or treads inclusive, add 18 per cent.; increasing 1½ per cent. for each additional lift or tread.

**PICK FINDING IN LOOMS WITHOUT DOBBIES.**—Whenever the employer requires the weaver in cloth with three or more lifts or treads to turn the loom backward or forward in order to find the shed in which the weft broke, he shall pay an advance of 10 per cent.

**ADDITIONS AND DEDUCTIONS.**—All the above additions and deductions shall be made separately.

**GENERAL.**—If any dispute should arise as to the interpretation of any of the previous conditions or clauses, or as to the price to be paid for weaving any goods, a meeting of the two committees (employers and employed) shall be held, with a view to an amicable settlement thereof, before any strike takes place.

The firm of Lehmann and Ritcher is erecting at Guben a large three-storied factory, with a frontage of 22 windows. It is expected to be ready for use early in October.

## THE TEXTILE INDUSTRIES OF DUNDEE.

(Continued from page 117.)

## HACKLEMAKING.

Very much of the success which has attended the spinning of jute may be attributed to the ingenious system of hackling devised by Mr. George Worrall, Blinshall-street. One of the chief difficulties in the preparation of the jute fibre was its separation and subdivision so as to make it possible to spin the fibre into yarn. Flax has to undergo the same process of separation, but as the fibre is much softer and more amenable to treatment, the machinery used does not require the same strength as was found necessary for jute. The machinery suitable for flax was at first used for the jute, but it was soon found that the new fibre put such a severe strain upon the carding cloth used that the expense involved through deterioration seemed likely to add greatly to the cost of production. The practice was to cover the cylinders with leather into which iron pins were inserted, and when these pins were broken there was no method of replacing them save by stripping the cylinders and clothing them afresh—a work which entailed the delay of several days, besides much expense. In December, 1852, a meeting of mill managers and card-cloth makers was held with the view of ascertaining whether a stronger card-cloth could not be introduced, as it was found that the leather filleting with iron pins could not withstand such a heavy fibre as jute. No reasonable escape from this difficulty was then suggested, but, as Mr. Worrall was then in business as a hacklemaker in Dundee, the subject was brought immediately under his notice. After much careful thought he came to the conclusion that hardwood lags or staves might be submitted for leather, and that by putting straight tempered steel pins in the staves a much cheaper and stronger covering could be made. On consultation with his partner, Mr. Hallam, he proposed to make cylinders covered in this fashion for experiment, but Mr. Hallam regarded the proposal unfavourably. After the dissolution of the partnership Mr. Worrall had the business in his own hands, and he then carried out the necessary experiments to test the value of his invention. On 2nd November, 1853, the first wooden breaker cylinder cover ever made was put into operation, and soon proved the utility of the device. In a very short time the old system of carding was abandoned, and the wood-covered cylinders were used with great success by all engaged in the jute trade. The great advantage of this system is not only its strength and cheapness as compared with the leather carding, but also its economy in time as well as money. In former times when the leather card clothing gave way days elapsed before it could be renewed, but under the present arrangement the staves can be taken out, the worn-out pins removed, and new ones substituted within a couple of hours. One of the machines in Mr. Worrall's works removes the worn-out pins from the staves at the rate of from 10,000 to 30,000 an hour, and the speed with which the pins can be refitted is quite remarkable. Mr. Worrall did not patent his invention, but generously placed it at the service of the manufacturers, and his public spirit in this respect has been highly appreciated and duly acknowledged by all engaged in the jute-spinning trade. It has now been universally adopted, and there are several firms engaged in the hacklemaking trade in Dundee, whose production of hackle-pins for the home and foreign trade amounts to several millions per week, the wire for which is all drawn in the city.

## LINEN-WEAVING.

Dundee has been fitly styled "the metropolis of the linen trade." The date at which the manufacture of linen cloth was begun in Dundee is not known, but it can claim a very respectable antiquity. Hector Boece, the prince of historical romancers, who was born in Dundee in 1465, quaintly alludes to his birthplace as "the town quhair we wer born, quhair mony virtewus and lauborious pepill are in, making of claitth." At the time of the Union of England and Scotland it is recorded that 1,500,000 yards of linen were made annually in Dundee, though this statement is open to doubt. There can be no question, however, that a hundred years ago (1789) the quantity of coarse linen made for sale and stamped amounted to 3,181,990 yards, valued at £80,537. If to this be added 700,000 yards of sailcloth, valued at £32,000, it will be seen that this branch of the weaving trade was an extensive one long before power-looms were introduced. All the yarn used up till the beginning of this century was spun by hand in the country districts, and was limited in quantity and uncertain in quality. The first attempt at flax-spinning by machinery in Dundee was made by Messrs. Fairweather and Mar, about 1793, in their

mill at Chapelshade, the motive power being a steam-engine of ten horse-power. This was followed by the erection of other four spinning mills, but these were unsuccessful as commercial speculations. In 1833, a vast change had taken place in this industry, as there were then 17 flax-spinning mills in operation in Dundee, with an aggregate of 178 horse-power in the steam-engines employed, giving occupation to about 2,000 persons. During the next 25 years a great increase took place in the number of spinning-mills, as in 1847 there were 36 mills in operation, with a motive power equal to 1,242 horses, while the number of spindles was 71,670.

The power-loom for weaving linen did not at first meet with success in Dundee. The earliest power-loom factory was that erected by Messrs. W. Baxter and Sons at their Upper Dens Works in 1836. Mr. William Baxter of Balgavies, the founder of this firm, belonged to a family that had been connected with the weaving trade in Dundee from the beginning of the eighteenth century. His first venture was a flax-spinning mill at Glamis, in the working of which he was associated with his four sons. Their success induced them to establish spinning-mills in Dundee, and to add weaving by power-looms in 1846, and thus to form the nucleus of the gigantic concern which is known throughout the world by the denomination of Baxter Brothers and Co. Their first mill on Dens Burn was soon supplemented by another near it. When the power-loom department was added the firm had two steam engines of 30 horse-power each, and 256 looms, with accommodation for nearly double that number, together with a calendering shop with a 10 horse-power engine. The present condition of the works is in marked contrast to their state in 1846. The ground now occupied by Messrs. Baxter Brothers and Co. extends to 21 acres, and the buildings have a superficial area of floor space of more than 12 acres, the greater part of which is covered with machinery of the finest description. When the first power-loom factory was started it was calculated it gave employment to 300 persons. Twenty years afterwards it was estimated that the number of persons employed by Messrs. Baxter was about 4,500, whilst it was stated in 1867 that the total number of persons directly engaged in the various branches of the linen and jute manufacture in Dundee could not be much short of 55,000. No accurate statistics of the operatives in this trade have been published lately, but it may safely be assumed that owing to the great increase in the jute trade the workers employed in these manufactures will be nearly 70,000 in number. Taking the leading firms engaged in this industry together with Messrs. Baxter Brothers, and adding the value of the bleach-works, calenders, and other factories necessary for the production of finished linen goods it is calculated that the capital involved in this industry alone amounts to close upon £2,000,000. But for the diversion of much of the energy to the production of jute fabrics that would otherwise have been devoted to linen manufacture this sum would be very much greater. It is calculated that jute spinning and weaving in Dundee alone require a capital of over £14,000,000, and when the subsidiary occupations—bleaching, &c.—are included it is safe to set down the capital involved in the production of textile fabrics of this description at not less than £17,000,000.

(To be continued.)

The large cotton-spinning factory of Van Heek Brothers, in Enschede, was destroyed by fire on the 7th inst.

The lace factory of Urschendorf, in Lower Austria, suffered severely from fire on July 23th, the damage being estimated at 40,000 to 50,000 florins.

The power-loom shed of the Heitz factory, at St. Margrethen, in Switzerland, which commenced working in 1868, was completely gutted in two hours. The building and the machinery are insured for about 400,000 florins.

The Württemberg linen factory of Blauren distributes a dividend of 5 per cent., and the Eilenburg cotton factory one of 3 per cent.

The Saxon Combed Yarn Spinning Company at Harthau distributes a dividend of 4½ per cent. on the old shares, and 2½ per cent. on the preference shares.

The crop of cocoons in Bulgaria has proved 50 per cent. inferior to that of the past year. The silkworm eggs most in favour are those of France, with large yellow cocoons. For a year the Bulgarian Government has prohibited the receipt of eggs by private persons, reserving to itself the sole right of sale. It is hoped that in this way the introduction of bad or unhealthy eggs will be prevented.



**FRENCH TRADE IN ASIA MINOR.**—A correspondent of the monthly bulletin of the French Chamber of Commerce at Constantinople laments the decline of French influence in Asia Minor. At Samsoun, for instance, more than half the value of the imports (12,740,304 fr. out of 20,297,263 fr.) passes into the hands of the English, the chief item being cotton goods, estimated at 10,000,000 fr. "We must move," he writes; "the time is unfortunately gone when French manufactures monopolised importation into the East. We must, alas! go to the mountain, as the mountain will not come to us."

## Textile Markets.

### COTTON.

**MANCHESTER, FRIDAY.**  
With the close of the current month, the cotton season of 1889-90 comes to an end. As we have often stated already, Liverpool speculators have been doing their best to work another corner, but owing to the superior insight into the conditions displayed by spinners in the closing months of last year and of the beginning of this, by which they were enabled to make such purchases as have carried them on to the present time without difficulty, and yielded them a fair return for their investments and labour, they are at present not much more interested than outside watchers of the struggle now drawing to a close in Liverpool. Though trade for the past month or two has, to a certain extent, been hampered, there has been nothing like the difficulty to contend with or the crying out owing to the severity of the pressure that occurred last year at this time. The rearrangement of the district holidays has had something to do with imparting relief, and in the future this rearrangement will unquestionably prove a great advantage to the trade in helping to neutralise the effects of the operations of speculators: this because the idling has been thrown upon that portion of the year when it is most important that spinners should take as little cotton from Liverpool as possible. This is a feature of this year, of which speculators have hardly been cognizant until this week, when the reduction of the trade's demand at Liverpool has been so remarkable. It is very probable that the power of abstention thus manifested by spinners has tended much to throw speculators into a state of great confusion. The trade during the week under notice is only estimated to have taken from Liverpool 27,000 bales, and it is probable that this hardly measures to the full their power of abstaining. It is quite possible that the coming week, unless prices decline still further, may show even less sales than this. But whatever may be the event, it is clear that anything almost is possible amongst these speculating fraternity in Liverpool.

**COTTON.**—The greatest confusion has existed for most part of the week in the future market at Liverpool, New York, and New Orleans. Cable advices from the other side have reported a decline of 11 to 12 points for near positions at New York, and 3 to 4 points for distant ones, whilst at New Orleans a fall of 22 points for August, 7 points for September, and 2 to 4 points for other positions, was reported on Tuesday. This led to a complete panic amongst dealers in Liverpool, and August and September lost about 6 points during Tuesday but recovered about 2 points before the close. Many fluctuations occurred during the day. This confusion was brought about by telegraphic statements that over 100,000 bales of new crop cotton would arrive in Liverpool before the end of September. The result of the week's changes is that August-Septembers fell from 6.34 to 6.18 on Thursday, this being slightly over  $\frac{1}{4}$ d. per lb.; 3 or 4 points of this was regained for a short time, but half of the recovery was again lost. New crops are only  $\frac{1}{4}$ d. to  $\frac{3}{4}$ d. down. At New York the decline has been very heavy, namely 37 points for August, 21 for September, and 5 to 6 for other positions. New Orleans shows an even greater decline, this reaching 55 points for August, 19 for September, and 7 to 10 for other positions. Naturally spot cotton has reflected the weakness of the future market, and prices have steadily declined. During the week American has lost  $\frac{1}{4}$ d., and Tinnivellys and Brazilians  $\frac{1}{8}$ d. each. Egyptians have been offered freely, but not bought to any material extent. Rates are unchanged. It will be seen from the above particulars that spinners have had every inducement to abstain from purchasing, and the combination of motives, to which we have referred, will account for the almost unprecedented fact that each day's sales during the week have been estimated at only 4,000 bales. The ring appears now to be thoroughly broken, and probably little more will be heard of a "corner" this year.

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

	Import.	Forw'ded.	Sales.	Stock.	Actual Export
American	11,559	29,503	15,880	342,980	696
Brazilian	106	1,303	770	34,830	—
Egyptian	65	1,596	1,370	38,260	52
W. Indian	1,915	667	660	9,560	56
E. Indian	25	2,884	3,080	252,380	1,210

Total... 13,679 35,953 21,760 660,000 2,014  
The following are the official quotations from the same source:—

	G.O.	L.M.	Mid.	G.M.	M.F.
American	6 $\frac{1}{2}$	6 $\frac{3}{4}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$
	M.F. Fair. G.F.				
Pernam	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$
Ceara	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$
Paraiba	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$
Maranham	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$
	Fair. G.F. Gd.				
Egyptian	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$
Ditto, white	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$
	Fr.	F.F.	G.F.	F.G.	Fine
M.G. Broach	—	—	—	5 $\frac{1}{2}$	5 $\frac{1}{2}$
Dhollerah	4	4 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$
Oomra	4 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$
Bengal	—	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$
Tinnivelly	4 $\frac{1}{2}$	—	5	5 $\frac{1}{2}$	5 $\frac{1}{2}$

\* Nominal.

**YARNS.**—As might naturally be expected, very little business has been transacted in these departments. Yarns are down from  $\frac{1}{2}$ d. to  $\frac{3}{4}$ d. per pound, but this rarely induces business, as manufacturers finding the market so very much shaken and buyers unwilling to place contracts for cloth, are abstaining from purchasing anything beyond what absolute necessity compels them to take. During the past day or two the irregularity has begun to spread. The export branches of the market are exhibiting no demand.

**CLOTH.**—Very little inquiry is met with in the cloth department, as buyers for all markets are holding aloof in the hope of doing better as soon as prices have got stable on a lower basis. We shall probably have a very quiet time in this market until towards the close of next month. A little buying may, however, be stimulated from the considerable rise in the exchanges which has taken place, providing merchants think the profit upon it can be secured, but of this great doubt exists.

### WOOLLENS AND WORSTEDS.

#### BRADFORD.

The condition of the wool market has not changed for the better. Both lustrous and demi-lustrous are difficult to sell. Botany wools and tops are in slightly better demand, but even here the condition of the trade leaves much to be desired. Cross-bred wools are unchanged in value. Yarns are sluggish, and spinners are contemplating the necessity of running their machinery on short time; the unfavourable weather that has been experienced for some time has seriously injured the prospects of the piece trade. A desultory trade is doing for the States, the suspense of the Tariff Bill still interfering with business. Prices remain without much change in any direction. Good lines in dress goods have moved off fairly well for the home trade.

#### GLASGOW.

Messrs. Ramsay and Co., in their report, dated 19th August, say:—

**Wool.**—No new feature in the wool market this week. A fair enquiry and moderate business doing at late quotations.

**SHEEP SKINS.**—The supply is large, and of good sorts, with a strong competition. Prices are fully maintained.

### FLAX AND JUTE.

As the flax harvest may be considered to be completely gathered in in the whole of Belgium and Holland, and in France, it is possible to give some reliable information about the result. Up to May 20th the weather was favourable to the development of the plant, which grew rapidly and looked well. Then, after several dry hot days, came a serious change in the weather, the nights were very chilly, and this arrested the growth of the flax which, with few exceptions, remained everywhere short. It was, therefore, soon foreseen that the quantity for 1890 would hardly reach one half of an average yield. Moreover, the heavy rains and numerous storms of June and July beat the flax down so that it was half overgrown by weeds and deprived of air and sun, and consequently was deteriorated both in colour and quality. On the whole the crop for the present year is poor, both in amount and condition. The unsatisfactory nature of the yield in France, Holland, and Belgium will not affect prices materially, as the Russian and Irish crops are fair. Higher grades of linens may be a little dearer.

### DUNDEE TRADE REPORT.

WEDNESDAY, 20th August, 1890.

The market yesterday was very disappointing. New York advises lower prices, with a weak market. The Argentine trade does not, as was expected, revive, and the large production tells the moment the least hitch occurs.

Jute, too, falls, notwithstanding the rapid rise in exchange. Firsts, which ten days ago were largely done at £13 10s., are now offering at £12 15s., and some business is said to have been done at £12 10s.

Yarns are again cheaper by say  $\frac{1}{2}$ d. all round. For 8lb. cop it is difficult to get 1s. 4d. Heavies only retain their value, and are wanted.

Hessians—common Dundee goods—are quoted at 1 $\frac{1}{4}$ d., with sellers over. For the white colour and fine quality this price gives no criterion, as the best makers are well engaged upon this class of superior goods, and pay no attention to these fluctuations in common Hessians.

Flax is firmer, especially Petersburg brown flax, but for Riga it is difficult to find buyers at any quotable advance.

Flax yarns are quiet, and unchanged. The heavier tow, in sympathy with jute, yield a shade in price, and have not been cheaper for many years.

Linens are in quiet demand, and the manufacturers compete eagerly with each other for any orders offering.

The Dundee Jute fancy trade is fairly brisk, and makers are well engaged for the autumn. The weather is very unseasonable. In the Cause of Gowrie wheat is lodged. In Strathmore also much of the crop is laid, and all over Forfarshire farmers are anxious, as the harvest must now be late.

### MANCHESTER.

Sales continue to be limited in extent both with distributors and manufacturers, and prices are unchanged, although the firmness of yarns in Belfast imparts a stronger feeling. The rise of 5% in prices of cotton towels also helps to strengthen quotations for lower grades of linens, such as crashes which are used for towellings. Jute goods are rather weaker. This week a representative of one of the largest Forfar manufacturers left for New York. It is understood that the visit is in connection with the tariff bill, which, if passed, will necessitate action of some kind in the direction of establishing a mill on the other side in order to retain their American trade. A correspondent informs us that there is a "crash" in the towel trade. We are quite prepared to credit the statement, but would suggest that future reports of this character be sent to *Punch*, as being more suitable for its columns than those of the *Textile Mercury*.

### DRY GOODS.

#### MANCHESTER.

In the home trade no change of importance can be reported, although the feeling is one of confidence. Towards the beginning of September it is expected that business will brighten up, as the holidays will then, practically speaking, be over. Yarn-dyed fancy cotton goods have not been in such extensive demand as was anticipated earlier in the season, and stocks at the present time are, therefore, somewhat extensive. In lace, the Russian net, with velveteen spots, previously referred to, is being pushed, but as the spots are gummed on, the material is spoiled by a shower of rain. This drawback will, it is to be feared, seriously mar the prospects of trade in these goods. The flannelette market is weak, especially in the home trade, the shipping department being the best section. Cancellations are being freely sent in owing to the unsatisfactory condition of affairs in South America, while the recent disturbing reports from Uruguay tend to increase the prevalent feeling of uneasiness. The Calico Printers' Association has passed a resolution instructing its members to charge all orders on and after the 1st prox. by the yard on the printed length. This resolution, if carried out, will put an end to a series of abuses to which the trade has for a considerable period been subject. It will, doubtless, meet with the strenuous opposition of certain shippers, especially the Roumanians, but it is to be hoped that the various printers will maintain a firm attitude.

### SILK.

#### LONDON.

THURSDAY.—London Produce Clearing House quotations of best 5 $\frac{1}{2}$  Tealce: August 12s. 2d., September 12s. 2d., October 12s. 3d., November 12s. 4d., December, 12s. 5d., January, 12s. 5d., February, 12s. 6d., March 12s. 7d. per lb. Sales registered, nil.



HOSIERY AND LACE.

NOTTINGHAM.

The Levers' department of the local trade is quiet, and full employment for the large number of hands engaged in this branch is not being afforded, while in other departments depression is also evident, both the home and foreign demands being small. In the fancy silk and the competition of French manufacturers is keenly felt, although none of them, judging from the reports which reach here, can be making much money. Novelties are being prepared for October when it is hoped that trade will bristen up somewhat. In plain, bobbin, Paris, and Paisley nets no change of importance is visible. The inquiry for costume nets has fallen off somewhat of late, and prices of plain cotton nets generally are very unsatisfactory. Mosquito nets are quiet, and there is not much doing in Mechlin, Brussels, and zephyr nets. Silk veil nets are in fair request. Curtains are the most prosperous department in the lace trade. In the hosiery trade a fair demand is experienced for striped and coloured goods in cashmere and merino. Plain cotton hosiery is only in moderate request.

LEICESTER.

Home-grown wool is quoted firm notwithstanding the unsatisfactory nature of business. The demand is very small, but sellers know that spinners are making great inroads on their stocks. This circumstance coupled with the fact that supplies are within moderate limits helps to strengthen the position. Spinners are already inquiring freely. Good half-hog and ewe wools have sold at 24s. to 25s. per tod; superior descriptions, 26s. to 27s. per tod; lots containing a large proportion of Shropshire fleeces, 27s. to 28s. per tod; and inferior lots, 22s. to 23s. per tod. Colonial wools are in steady request, and prices are well maintained. New business for yarns is on the basis of very low prices. Lambs' wool yarns sell more freely, and cashmere yarns are steady. The hosiery trade is fairly active, and the boot and shoe trade is reviving steadily. Elastic web fabrics are in good demand for home, American, and Continental markets.

THE KIDDERMINSTER CARPET TRADE.

There is little alteration to report this week in regard to the condition of this trade. Business all round remains quiet, and no important movement is expected for the next month or two. In the meantime the production of new patterns is absorbing the attention of manufacturers, and this necessary work keeps a quantity of machinery employed which would otherwise be lying idle. Notwithstanding that so few fresh orders are arriving and the production of goods at the present time is so light, a fair quantity of carpets are still being despatched from the warehouses against orders booked in the spring.

Business in carpet wools continues restricted, and there is no doubt that this tends to keep values down. Spinners are not yet in a position to gauge future requirements, and are awaiting a movement on the part of carpet manufacturers before attempting to replenish their stocks.

Joint Stock and Financial News.

NEW COMPANIES.

ROYAL MILLS COMPANY, LIMITED, OLDHAM.

This company was registered on the 13th inst., with a capital of £30,000, in £10 shares, to acquire the Royal Mills, Roohdale-road, and Featherstall-road North, Oldham, the property of J. W. Travis Cocker, and to carry on business as cotton spinners and manufacturers. The subscribers are:—

*G. Buckley, Royton, cotton spinner	.....	1
*T. Winstanley, Hollinwood, sharebroker	..	1
*T. Watson, Oldham, pork butcher	.....	1
*L. Reddaway, Oldham, merchant	.....	1
*J. W. T. Cocker, Royton, cotton spinner	..	1
W. H. Stacey, Oldham, chemist	.....	1
D. Grundy, Oldham, schoolmaster	.....	1

The number of directors is not to be less than four, nor more than seven; the first being the subscribers denoted by an asterisk. Remuneration, £140 for each half year, divisible. Qualification, 100 shares. Solicitor, Mr. Edmund Taylor, Oldham.

R. DEWHURST AND CO., LIMITED, BIRSTALL.

This company was registered on the 9th instant, with a capital of £100,000, in £5 shares, to acquire and take over as a going concern the business of printers and embossers of woollen, worsted calico, and other fabrics, materials, and substances carried

on by R. Dewhurst and Co., at Birstall. The first subscribers are:—

*Mrs. Dewhurst, Highfield, Eastbourne	.....	1
*Robert E. Dewhurst, New Cloe, Grimaby	..	1
*J. H. Sparks, Parkside, Eastbourne	.....	1
J. L. G. Dolland, Aspley, Huddersfield	.....	1
J. Robinson, Carlingham	.....	1
J. Beavers, Birstall	.....	1
J. Sykes, Birstall	.....	1
E. Scholes, Birstall	.....	1

There are not to be less than three, nor more than seven directors; the first are the subscribers denoted by an asterisk and Albert Stockdale; remuneration, 5 per cent. of net profits. Solicitors, Messrs. Leary and Co., Huddersfield.

HARRISON AND BOWEN'S BUTCHERS HIDE SKIN, FAT AND WOOL COMPANY, LIMITED.

Registered by Prior, Church and Adams, 61, Lincoln's-inn-fields, W.C., with a capital of £20,000 in £1 shares. Object, to carry on the business of hide, skin, fat, tallow and wool brokers and salesmen in Worcester, in accordance with an agreement, made August 6, between Edward Harrison Bowen of the one part and C. Purser and J. Cridlan, as trustees for the company, of the other part. The first subscribers are:—

F. Smith, Tything, Worcester	.....	500
J. Cridlan, Malvern	.....	500
C. Purser, Malvern	.....	1,000
W. Price, Hereford	.....	25
R. Bright, Leominster	.....	100
C. Sharp, Hereford	.....	40
E. S. Smith, Worcester	.....	400
E. H. Bowen, Worcester	.....	10,000

The first directors shall be appointed by the subscribers to the memorandum of association. Qualification, one share. Remuneration to be determined in general meeting.

HIGGINS, EAGLE AND CO.

Registered by J. N. Mason, Phillips and Cotton, 32, Gresham-street, E.C., with a capital of £120,000 in £10 shares. Object, to acquire the business of a lace and embroidered muslin manufacturer and wholesale warehouseman, carried on by Richard Higgins, at 4 and 6, Cannon-street, E.C., under the style of Higgins, Eagle and Co., and all or any part of the real and personal property belonging to him and used in connection with such business, and to undertake all or any of his liabilities in relation to such business. The first subscribers are:—

R. Higgins, 4 and 6 Cannon-street, E.C.	.....	1
E. Clark, 4 and 6, Cannon-street, E.C.	.....	1
E. T. Edwards, 4 and 6, Canon-street, E.C.	..	1
E. Turner, 41, Grosvenor-road, S.W.	.....	1
Miss A. Higgins, Belgrave Mansions, S.W.	..	1
Miss G. Higgins, Belgrave Mansions, S.W.	..	1
O. A. Body, 4 and 6, Cannon-street, E.C.	.....	1

There shall not be less than three nor more than seven directors. The first are E. Clark, E. T. Edwards, and A. C. Body, and Richard Higgins (who is appointed managing director). Remuneration, such a sum as the board shall determine (not exceeding such a sum as shall equal £500 multiplied by the number of the ordinary directors for the time being) shall be set apart annually for the remuneration of the ordinary directors, and shall be divided amongst them as they all determine.

THE BOLTON HEALD COMPANY, LIMITED.

Registered by Waterlow and Sons, Limited, London-wall, E.C., with a capital of £10,000 in £10 shares. Object, to carry into effect an agreement, made August 13th, between the American Heald Company, Limited, and Dyer Smith, of the one part, and Wm. Wallwork of the other part; to manufacture, sell, and deal in iron loom harness and all machinery, gear, and appliances, or in any process connected therewith. The regulations of Table A, with slight modifications, apply.

Gazette News.

PARTNERSHIPS DISSOLVED.

Rushworth, Shepherd, and Co., Union Shed, Outler Heights, Laisterdyke, near Bradford, worsted coating manufacturers.

W. D. Beech and Co., Brazennose-street, Manchester, commission agent.

Lamprell, Andrew, and Emmerson, Cannon-street, London, lace warehousemen, as concerns John C. Andrews.

Rothenstein, Falkenstein, and Co., Bradford, stuff and woollen merchants.

Ambler and Holmes, Chapel Hill Mills, East Parade, Huddersfield, roller makers, etc.

SCOTCH SEQUESTRATION.

Matthew Jamie and Son, Wallacetown, Ayr, manufacturers.

Patents.

APPLICATIONS FOR PATENTS.

The names in italics within parentheses are those of Communicators of Inventions.

Where Complete Specification accompanies Application an asterisk is suffixed.

11TH TO 16TH AUGUST.

12,513. J. WILLIAMS, Willesden Paper Works, Willesden Junction. Rendering canvas and other fabrics rot-proof.

12,522. W. FIELDING and H. A. FIELDING, 4, St. Ann's-square, Manchester. Jacquard machines. 12,525. F. FOSTER, 20, Charles-street, Bradford. Pile-warp let-off motions of looms for weaving pile fabrics. (*R. Foster United States.*)

12,528. W. I. JAMES, 8, Brunswick-terrace, Stafford. Circular knitting machines.

12,529. E. SYKES and D. SYKES, Market-place, Huddersfield. Machinery for scouring and dyeing hanks of yarn.

12,550. J. Y. JOHNSON, 47, Lincoln's Inn Fields, London. New diphenyl derivatives and a new base for use in the preparation for dye-stuffs. (*Badische Anilin und Soda Fabrik, Germany.*)

12,576. J. SUTCLIFFE and J. GREENWOOD, 4, St. Ann's-square, Manchester. Treatment of yarn for weaving.

12,595. W. LORD and S. GARSIDE, 17, St. Ann's-square, Manchester. Slubbing intermediate and roving frames.

12,604. E. P. DRAPER and I. A. LYON, 46, Lincoln's Inn Fields, London. Tension regulating devices for the driving bands of spinning and twisting machines.\*

12,652. S. SPENCER, 4, Corporation-street, Manchester. Machines for bleaching, dyeing, sizing, and scouring yarn in the hank or warp, and also fabrics.

12,662. I. S. LODGE and G. LITTLEWOOD, Market-place, Huddersfield. Jacquard mechanism of looms.

12,689. K. TROBACH and G. J. BLUCK, 46, Lincoln's Inn Fields, London. Obtaining and bleaching vegetable fibres\*

12,715. B. WILCOX, 47, Lincoln's Inn Fields, London. New derivatives of alizarine and its analogues. (*Farbenfabriken vorm. F. Bayer and Co., Germany.*)

12,720. S. WOOD, 3, Commercial-street, Halifax. Carpet.

12,739. J. KIRK and B. LEE, 8, Quality Court, London. Finishing "Italian" cloths and other fabrics.

12,740. J. PEEL and G. BOOTH, 8 Quality Court, London. Automatic shuttle-guards.

12,776. A. WRIGHTSON, 47, Lincoln's Inn Fields, London. Knitting machinery.\*

12,783. H. H. LAKE, 45, Southampton Buildings, London. Removing knots, bunches, and the like, from silk threads. (*Saturnin Germain de Mouteausan, France.*)

12,787. C. MACINTOSH and Co., Ltd., and J. BAGNALL, 4, St. Ann's-square, Manchester. India-rubber thread.

12,815. T. BARKER, 11, Henry-street, Bolton. Carding engines, doffing combs.

12,838. H. H. LAKE, 45, Southampton Buildings, London. Looms. (*F. Lacey, United States*)

12,839. S. G. PACKER, 166, Fleet-street, London. The manufacture of "clear selvages" upon veil and millinery nets in warp lace machines.

12,855. J. MORRIS, 14, Cranbourne-street, Belgrave-road, Leicester. Circular knitted hose, half hose, and children's socks.

12,856. E. KEIGHLEY, 3, Commercial-street, Halifax. Rotary shuttle box looms.

12,876. J. W. BRERTON, 6, Lord-street, Liverpool. Clamping and holding flax, etc., during scutching and hackling.

12,879. T. GADD and J. MARRIOTT, 323, High Holborn, London. Knitting machines.

12,898. T. KIDDER, J. KIDDER, and J. W. KIDDER, 24, Southampton Buildings, London. Warp knitting machines.

12,901. J. CAIRNS, 45, Southampton Buildings, London. Checking the motion of shuttles in looms.

SPECIFICATIONS PUBLISHED.

1899.

11,716. VAUGHAN and THE HURST MILLS COMPANY, Ltd. Carding engines. 6d.

12,159. HEARTH and others. Stocking, etc. 8d.

12,275. STIBBE (*Dubied*). Knitting machinery. 8d.

12,670. MARDEN and others. Woollen condensing machines. 6d.

12,975. DEBU. Drying wool, etc. 8d.

12,988. ASHWORTH G. and E. Carding engines. 8d.

13,913. THOMPSON. Drawing fibres. 6d.

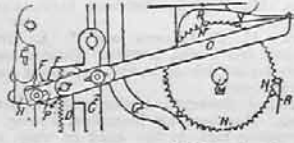


- 14,246. ASHWORTH. Indigo vat. 4d.
- 14,308. TYLER and others. Looms. 6d.
- 14,962. GLOVER and GUILTYKANE. Rope making machinery. 8d.
- 15,036. SOWDEN. Looms. 8d.
- 15,046. HAWORTH. Weavers' shuttles. 8d.
- 15,047. EVES. Spinning frames. 6d.
- 15,059. JACKSON. Tearing etc., rags, waste, etc. 8d.
- 15,135. RICHARDSON. Making carpets, etc., from esparto grass. 4d.
- 15,264. BOYD. Webbing. 4d.
- 15,324. CLAYTON, J. and D. Bobbins, spools, etc. 8d.
- 15,464. HETHERINGTON. Spinning mules. 8d.
- 15,671. SCHREINER. Bleaching. 6d.
- 16,483. WHITE and others. Circular knitting machines. 8d.

- 541. BREARLEY, A. and R. Witney cloth. 6d.
  - 1,611. WILSON. Compressing cotton, etc. 8d.
- AMENDED SPECIFICATION.  
1889.
- 4,130.\*\* BAREFOOT. Straight bar knitting frames. 8d.
- SECOND EDITION.  
1889.
- 2,112. SIDEBOTTOM. Cotton spinning, etc. 8d.

**ABSTRACTS OF SPECIFICATIONS.**

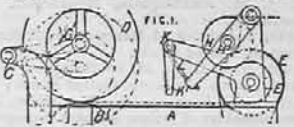
**4,940.** March 20, 1880. **Looms.** W. CUNNINGHAM and R. BURTON, Woodhead-street, Dunfermline, N.B.



*Jacquards.*—The cards are carried by projections on two pulleys on a shaft M. A toothed pinion N on the latter is operated on a catch O working on a guide V, and moved by a crank P on a shaft F, a pinion E on which is turned by a rack D on one of the lifters C. The cylinder is moved a tooth at a time, and brings the rows of holes in the cards successively into position to select the needles, large teeth R being provided at the joinings of the cards. By regulating the travel of the catch O the motion of the cylinder may be varied, and the cards may be worked any number of rows at a time. The spring box H is moved by a cam behind the pinion E to pull back the needles at each motion of the lifters. The needles have elongated eyes, and the lifting hooks are formed with expanded or looped tops, to permit of the return of the needles without interference with the raised hooks. This machine may be made single-acting by dispensing with one lifter, and turning the cylinder at half speed, and it may be applied to looms working twill, hosiery, crapes, diaper, towel, or plain cloth at intervals, by means of a dobbie, or the like. [4d.]

**4,950.** March 20, 1880. **Drying banks.** C. TURNER, Cinnamon Hill, Spottland Bridge, Rochdale.  
The banks are stretched between rails carried by the arms of rotating frames on a shaft. The upper frame is fixed to the shaft, but the lower is caused to slide upon it by a rack working in a slot, and operated by a pinion and hand wheel. A ratchet and catch are provided for holding the frame in position when the banks are being placed upon it. [8d.]

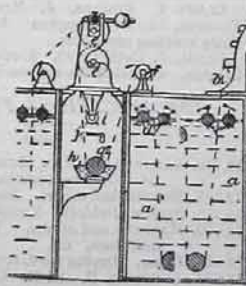
**4,928.** March 21, 1880. **Reaming yarns.** W. G. BRYANT and T. R. BRANLAND, Sweet-street Foundry, Leeds.



A frame A, movable upon wheels, carries a shaft, upon which are fixed a series of pulleys B. The sections D of warp are carried on studs on arms C, mounted on a shaft C, each section resting on a pulley B. The yarn is passed around and between rollers E, H to the driven warp beam. The pressing roller H is mounted on arms H', which may be raised by a hand lever K, shaft K, and strap L, when required; on the shaft of the roller E is a pulley E' carrying a weighted brake-strap for maintaining the tension of the yarn. [4d.]

**4,991.** March 22, 1880. **Dunging; soaping.** J. YATES, Backwood Mill, Broadbottom, Cheshire, and G. KAY, Dingle Bank, Prestwich Park, Prestwich, near Manchester.

The drawing shows part of a series of open soaping tanks. The fabric is led into each tank through a pair of rollers or other batters revolving on the surface of the liquid in opposition to the fabric, and on leaving the tank it passes through another pair of batters acting in the same direction as the fabric, by which means scum and loose material are removed from both sides of the fabric. The fabric then passes over a



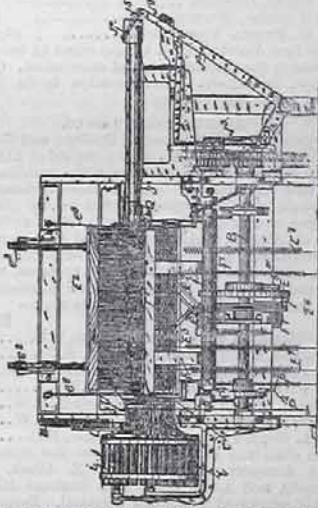
roller f, about a roller g in a water trough h, and is acted upon by water jets i and a single batter j on its way to the squeezing rollers k, after which it passes over a steam-heated roller l, and thence into the next tank. [8d.]

**5,032.** March 22, 1880. **Dyes.** J. INAY, 23, Southampton Buildings, London. (*See also the Matieres Colorantes de St. Denis, 165. Rev. L'Appareil, Paris.*)  
Relates to the preparation of grey, brown, and analogous colouring matters from nitroso derivatives of aromatic amines. Consists in heating these substances in aqueous or other solution. For example, nitrosodimethylaniline hydrochlorate is dissolved in water and the solution is heated to the boiling point for three hours. After cooling, the solution is poured into about twice the quantity of water, the colouring matter is precipitated by addition of a mineral salt, such as zinc chloride, and dried at 80° C. Alcohol or benzene, or other hydrocarbons, may be used as solvents instead of water. The nitroso compounds employed are those of tertiary amines, such as dimethylaniline, methylethylaniline, dimethylanilamine, etc., and of secondary amines, such as monomethylaniline, diphenylamine, monomethylolamine, etc. The colouring matters, dye and print cotton mordanted with tannin. [4d.]

**5,079.** March 23, 1880. **Phenol iodides.** B. WILCOX, 47, Lincoln's-Inn-Fields, Middlesex.

Relates to the manufacture of iodine substitution derivatives of phenol, cresol, resorcin, thymol, beta-naphthol, salicylic acid, and cresol carboxy acids, in which the hydrogen of the hydroxyl group is substituted by iodine. Consists in treating these phenols in caustic alkaline solution, with a solution of iodine in an alkaline iodide solution. The precipitated iodide compounds, for example, iodothymol-iodide, COH.I, CIP, CHTOI, is filtered off, and the mother liquor, containing fixed iodine, are utilized to iodine a fresh quantity of the phenol, by mixing them with an alkaline solution of the latter, and adding an oxidizing agent, such as chloride of lime, or an alkaline hypochlorite. [6d.]

**5,206.** March 26, 1880. **Loom for chenille, etc.** S. PIER, Sinton, Surrey. (*U. S. Sinker and E. Tyson, New York, U.S.A.*)



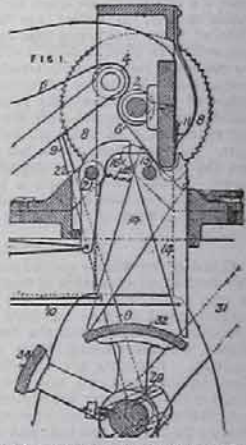
The loom is especially designed for weaving chenille or fur for use in making carpets, but may be employed for weaving other articles or goods. The strips of chenille are forced with gauze-woven selvages. The various parts of the loom are operated by cams and springs from a main cam shaft B which turns once only for each two movements of the healds, the cams being formed with duplicate grades where requisite.

*Supplying, inserting, and cutting weft.*—Balls or cops of differently coloured or shaded weft yarns are held in cases i arranged in two concentric rows in a rotatable holder l, each case being fitted with a tube, through the nozzle m of which the yarn protrudes. Tension is applied to the yarn by passing it through thick felt pressed on by a spring. The holder is turned by hand or power to bring the required weft into position, indexes L, M and pointers being provided by which to set the holder according to a pattern card. A stop N governed by a treadle keeps the holder in its selected position. The reciprocating yarn needle J is worked from a draw cam on the shaft H through a treadle lever, link J, elbow lever J', link J', and a slide J' carrying the needle; the treadle lever carries bowls which embrace the rim of the cam. The needle is formed with spring nippers which are forced on to the selected nozzle s, so that when the needle returns the weft is slipped and drawn through the shed; a bumper J' stops the lever J, and a stop O worked by a cam prevents rebound. The shed partly closes, and the weft is cut by special shears P operated by a cam P, and levers, and is then beaten up. To release the weft from the needle before beating up, an opener or wedge Q is forced between the nipper jaws. The needle J contains a spring shank which carries the nippers, so that the latter do not recede beyond the reed until forced to do so by a projection on the opener Q; waste of weft is thus prevented. The ends of weft at the needle side are cut by fixed and movable blades near the breast beam.

*Let-off mechanism.*—The lay P, carried by a cam P, as usual, and is worked by arms f from a rock shaft f which is operated through a spring lever from a cam F.  
*Let-off and shedding mechanism.*—The central warp threads and the twisted or doup selvage warp threads are let off from separate beams, and are conducted over whip rolls through the healds and reed to ordinary take-up mechanism. There are three healds, the front one E, of which contains eyed-wire doup, whilst the others are plain. The front and back healds are connected by straps to rockers, so shaped to equalise the shed. The front two healds are operated by rods e, e' from a treadle E' worked by a grooved cam E, whilst the back one is connected with springs E'. The middle heald works loosely in guides. The doup are all connected with a spring bar E. The warps are threaded through the healds in such a way that the doup threads are raised alternately by the back and front healds, and are each made to cross from

side to side of two main warp threads. The doup threads are relieved of the strain of raising the doup bar E, when the back heald rises by cord connections a between the lay and the doup bars from E. The doup threads are slackened for crossing by shifting the whip roll, against the action of its weight, by means of a spring lever operated from the doup head. Extra tension is applied to the doup threads to assist in lifting the doup, as the back heald rises, by a cam-worked lever acting downwards on the doup whip roll weight rod. This whip roll is so mounted as to give out an amount of thread equal to twice its forward motion. The cam E, is shaped to partly close the shed before the weft is severed, and then to close it entirely for the beat-up. [1s. 3d.]

**5,352.** March 23, 1880. **Punching Jacquard cards.** T. I. BIRKIN, Broad-way, Nottingham, and R. WISE, 130, N. el-street, Nottingham.



Apparatus is described for actuating the strings 10 of the selecting needles which act on the punches. The strings are connected to keys 14 hanging on a rod 15. The draft sheet 6 is drawn down between a table 1 and a spring bar 11 by feed rollers 2, 4, a single horizontal line of the draft being visible between the bar 11 and the front tops of the keys. By operating a handle 31 a segment 34 carried by the shaft 29 brings all the keys so that their edges 14 are held by spring catches 20 on the rod 21. The keys opposite the squares of the draft which are to be read in are then depressed by any suitable means, and thereby released from the catches, and are then operated by a second segment 32 to slacken their strings 10. Combs 16 and 22 hold the keys and catches in position. The feed rollers 2, 4, are operated from the shaft 29 by a caton 9 and ratchet wheel 8. [1s. 1d.]

**5,380.** March 20, 1880. **Laundry blue.** G. R. B. KERRICK (R. Bishop and Co.), Abbey-road, West Ham, Essex.  
Consists in preparing a blue for laundry purposes in a crystalline form, by mixing an aqueous solution of aniline, or other suitable blue, with a solution of sulphate of alumina and potash and chloride of sodium, and concentrating the mixture. On standing, crystals containing the blue colouring matter, and possessing an affinity for textile fibres, are obtained. [4d.]

**5,410.** March 20, 1880. **Looms.** N. GREENING, 40, Rue Pascal, Paris.

For weaving wire fabrics the weft is carried on a bobbin in a shuttle, preferably of metal, with the body of which the bobbin flanges are in contact, to prevent over-running of the weft, a lenzor or other washer being sometimes inserted at the bobbin end. The shuttle is pushed to and fro through the shed by the rods of pistons working in cylinders under the action of fluid pressure, the valves being controlled by rods, and levers from a cam. The piston rods may have conical ends to enter recesses in the shuttle tips. In a modification, the reciprocating rods are operated through levers, from a special cam. The weft is caught at the selvages by rising and falling cam-worked "pickers," and held until the pull thereon ceases. The selvage is also pressed between a fixing link and a lever fulcrumed below, worked forwards by a cam acting on a bowl, and backwards by a cam acting on a bowl on a rod, which moves between guide bowls, the cams being shaped to give the required dwells. [8d. Drawings.]

**5,420.** March 20, 1880. **Looms.** M. MACLEWARTH, Warwick-road, Solihull, Birmingham. A. L. K. GREENING, 79, George-street, Manchester, and W. MACLEWARTH, Junior, Gravel, Crookston, Renfrewshire.

*Dobbie.*—Relates to improvements in the mechanism described in Specification No. 13,086, A.D. 1888, whereby a positive open shed may be produced for weaving twilled and other fancy pattern fabrics, such as table cloths, muslins, woollens, lace or leno, or gauze fabrics. [1s. 2d. Drawings.]

**PATENTS, DESIGNS & TRADE MARKS ACT, 1883.**

NOTICE IS HEREBY GIVEN that ADOLPH VORBERK, of Barmen, in the Kingdom of Prussia, has applied for leave to amend the specification of Letters Patent No. 13,988, of 1880, granted to Edward Kenworthy Dutton for "Improvements in the formation of knitted waist bands and in apparatus for weaving webs for such uses."

Any person may give notice (on Form G) at the Patent Office, 25, Southampton Buildings, London, W.C., of opposition to the amendment, within one month from the date of the said journal. (See G.)

H. READER LACK, Comptroller General. Agents for the Applicant. 25, Southampton Buildings, London, W.C.

**PATENTS.**  
**W. P. THOMPSON & CO**  
Agents for procuring Patents and Registering Trade Marks and Designs.  
**6, Bank St. (Exchange), Manchester,**  
8, Lord St., LIVERPOOL; and 212, High Holborn, LONDON.  
Largest Patent Agency in Great Britain.  
"Facts for Inventors" (Disputed sent free on application)