

# The Irish Textile Journal,

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### Notices.

Correspondence and items of interest bearing upon the Textile Industries, Technical Education, or other questions treated in this Journal, are solicited. Market reports, or notes respecting the position and prospects of our Irish industries, will be specially acceptable. Correspondents should write briefly and on one side of the paper. Foreign readers are invited to send reports, and to point out any facilities which may exist for promoting the interests of Irish manufacturers.

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The *Linen Market*, published every Saturday, at the above address, deals exclusively with the Irish linen trade in all its branches. Annual subscription, £1 1s. The *Irish Textile Journal* and *The Linen Market*, if ordered at the same time, will be supplied by post for £1 4s., or if within the City delivery for £1 2s. 6d., per annum.

The *Home and Foreign Linen Trade Directory* is now in preparation.



### Belfast and Chicago.

**I**N reference to the article which appeared in this Journal last month, under the above heading, giving the reasons why Belfast should make a good show at the World's Fair next year, we received a letter from Mr. Thomas Baker, of Dublin, secretary to the local committee for Ireland on the Royal Commission, stating that the committee hoped it might stir up an interest in Belfast, and that the linen trade would be adequately represented on the occasion. We trust, before it is too late, that steps will be taken to have a good exhibit of Irish textiles at the World's Fair. In another column we quote from a leading trade journal in Germany with reference to the action of the manufacturers of that country, from which it would appear as if the Exhibition to be held at Berlin is overshadowing the one at Chicago, and that the ardour at first displayed of making a great demonstration at the latter has been very much damped by the one nearer home, which at present seems to be exciting more interest. All the greater reason why Ireland should be in good evidence if Germany, at the last moment, is going to hold back. Our New York correspondent alludes to the subject in his letter this month.

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### Technical and Agricultural Education in Ireland.

We publish in another column an important communication, from Mr. R. H. Pringle, one of the Inspectors under the Land Act of 1890 (which appears in the *Farmers' Gazette*), in reference to the great advantages now offered to local bodies throughout Ireland, who are willing to adopt the provisions of the Technical Instruction Act. The

authority charged with its administration is, in nearly every case, the Board of Guardians, and where they are willing to impose a rate of one penny in the pound, for the purpose of providing technical instruction, the fund will be supplemented by a Government grant of an equal amount, the minute of the Privy Council on Education stating that "the grant in aid will be made to the School aided by the local authority, and will be equal in amount to the sum contributed by it out of the rates." Looking to the fact that the prosperity of Ireland is so intimately connected with the proper cultivation of the soil, it becomes a matter of paramount importance that a more intelligent system should prevail, instead of the ignorant and ruinous one which so largely obtains over a considerable area of the country. From his large experience Mr. Pringle is a competent judge of what is still going on in Ireland, and we cannot do better than let him describe, in his own words, the ignorance that largely exists.

"Our poor farmers groan because of their poverty and ignorance. They live in a state of distraction, and on the verge of starvation. They manage their land and stock on a system which prevailed in England two centuries ago. I have beside me the description of farm management as it exists on 132 farms in a midland district, and in only three instances out of the 132 could I detect anything like a distinct rotation of crops. The arable land was in two parts—one lying in temporary pasture of various ages from one year to eight years, and mostly composed of worthless grasses and pernicious weeds; the other undergoing the most cruel scourging of croppage. Consecutive corn crops for two, three, and four years, followed by potatoes or turnips; both removed from the land and manured with the miserable droppings of a few starved calves, washed to uselessness by the rains of six months' rainy season, and made no better by the addition of road scrapings and turf mould. The land was cropped much and weeded little, till at length it "gave up growing," and then it was "laid out to grass" and the other half taken up.

"The peculiarities of farming among the small holders throughout a very large portion of Ireland are already well known. I have done my best to let them be known, and this I did not for any satisfaction that I derived from the recitation, but in the fond hope that the truth might become mighty, and in the end prevail."

Doubtless, in many parts of the South, as well as the North, farming is carried on in a much more intelligent manner than this, but it is to be feared that, to a very large extent, it is no overdrawn picture of the condition of agriculture in too many districts. Mr. Pringle makes out a strong case for an urgent application of the means now available for bringing about a reform. Want of technical and manual education lies at the root of the present condition, and is the cause of unproductive farming, whilst up to the present, as we have frequently shown, the National system of education has failed to impart that knowledge so essential in a country like this, where the main occupation of the people is agriculture. Mr. Pringle advocates the formation of half-a-dozen large educational farms in the first instance, and as time passed on, and the best way of imparting instruction was discovered, it might be advisable to start a larger number, but at the first he is opposed to numerous small establishments. Meetings should be organised in various parts of Ireland with the object of stirring up public opinion on the question, so that the provisions of the Act, and the great advantages which follow its adoption, may not remain a dead letter. This is a question upon which Irishmen of every shade of political opinion may unite. It is of interest to every class, and if we wish to secure the generous aid offered by Government there must be an initial step of self-help taken by the country in the first instance. We strongly urge upon the various Poor-law Boards throughout Ireland the consideration of this great question.

### The Royal Commission on Labour.

The first Report of this Commission has been published, but it merely refers to the number of sittings of the Committee last year, and states that, as the evidence is so voluminous, the Commission directed that certain digests should be made in order to make the materials accumulated easily accessible at any stage of the inquiry. These digests consist of:—(1) A *précis*, which embodies, in a convenient form, the substance of the evidence of each witness, preserving as far as possible the actual words used by him. (2) The abstracts, which contain all the evidence taken on certain points which appear to be of the greatest practical importance." The Report goes on to state that inquiries into the conditions of the employment of women, and of the agricultural labourers, appeared to present special difficulties, and they recommended the appointment of assistant Commissioners to investigate these questions locally. The Report concludes by stating that until further progress is made in collecting evidence, the Commission will reserve any recommendations they may consider it necessary to make.





## Common-sense Underclothing: A Seasonable Subject.

### II.

**W**E live in an age in which nothing is taken for granted, and, in one direction or another, scientific research is always on the alert to correct or justify our circumstances. But the injunction to take no thought "wherewithal shall we be clothed" has been, in this respect, too literally obeyed. Little attention has been paid to the hygiene of the raiment in which so great a portion of our lives is spent, and clothes, which, after all, are but textile habitations, have been treated with indifference, while our outer dwellings have been improved and reformed. Plenty, to be sure, is written in magazines and newspapers of the style and shape of the apparel which appears in sight; the flow of comment, information, and small talk about fashion is uninterrupted and apparently unlimited; but upon the materials and making of the underwear which should maintain, if not assist, the important functions of the skin, there is almost absolute silence. In more substantial literature there is nearly as grievous a neglect of the serious aspects of clothing, and there is far more thought given by men of mark to the history and psychology of dress than to its influence upon health and general welfare. It is difficult, if not impossible, to find a book upon the subject equal in size to *Health Culture*, although, with that volume, extent is in inverse proportion to its value. The absurd contentions of the author make it tolerably certain that the public have adopted wool with unreasoning credulity, for thoughtful study of *Health Culture* is quite enough to keep anybody from following a practice which has nothing more than such grotesque ideas to show for its most advanced and authoritative exposition. Even disciples or retainers of the author cannot be induced to defend his theories, if empty affirmations about warmth-giving odours and poisonous fatigue-matters deserve to be dignified by such a title. But the age being one of advertisements and fads likewise, a commercial crusade on behalf of wool for underwear has been drummed into popularity, and, like sheep, people have followed each other in putting on wool, accepting implicitly all assertions in its favour, and rarely having knowledge wherewith to weigh and scrutinise the statements made on its behalf. Some few medical men have fallen in with the throng, but the practitioner who first made careful inquiry and investigation into the merits of fibres before recommending any one of them, is as hard to find as the person who has given linen a fair trial before putting on wool. Proof positive in support of wool-wearing next the skin has not yet been produced. That may be declared without hesitation, and it is safe to add that the balance of testimony, especially from leading witnesses, is on the side of linen. Further research will, we are convinced, only establish still more conclusively the supremacy of flaxen fabrics.

In practical tests there was one course suggested by Dr. Jaeger to which no exception can be taken. The simplest experiment, he says, in considering the relative drying properties of wool and cotton "is to wear gloves or socks, one of wool and the other of cotton." Give the human body a trial. This simplest of experiments was lately put into practice, and on a memorable occasion Professor Pettenkofer said—

Hitherto I have <sup>scarcely</sup> more to say in favour of woollen than linen. But linen also has merits peculiar to itself—good qualities which wool has not. Rubner has recently caused some investigations to be made to ascertain how much perspiration is absorbed from the skin by different clothing materials. The result shows that much more perspiration is taken away from the skin by vegetable fibre fabrics than by animal fibre materials. It is well known that perspiration is most copious from the feet, and so the experiment was made, by several persons, of wearing a woollen sock upon one foot and a linen sock upon the other, on the supposition that equal quantities of perspiration would be obtained from each. An exact determination was made, and it showed that whenever the socks were changed from one foot to the other, different quantities of perspiration appeared, more, indeed, always essentially more, on the foot where the linen sock was than on the other. The wool, of course, leaves the perspiration behind on the skin—that is, the perspiration does

not pass off. It has been already observed that those who wear woollen have to bathe more frequently than those who wear linen.

Here was Dr. Jaeger's suggestion implicitly acted upon, and the conclusions adopted by an eminent man whose judgments had always before been received with respect and acclamations by the woollenites. But, in view of an adverse verdict, Dr. Rutherford accused Professor Pettenkofer of trying to curry favour with the linen men, and wrote contemptuously of "Rubner's tomfoolery with the feet."

In relation to perspiration, this quality of fibres is of considerable importance. Evaporation is continually in progress upon the human body, more by far during unusual activity or in higher temperatures, but so much at all times that, under ordinary conditions, about two pounds of moisture are discharged by the skin every twenty-four hours. In proper clothing this is at once absorbed and again diffused on the outer surface, but if the moisture is generated in excessive quantity the material becomes saturated, and is dried to a great degree by the heat of the body. Dr. Jaeger contended that upon the body wool dried much quicker than cotton, holding that "the vital stimulating effect has to be considered." He is thus, as in other instances, in opposition to accepted authorities, but, in any case, the "vital stimulating effect" is produced at the expense of the body. The material that longest retains moisture, whether that results from outward wetting or from perspiration, puts the greatest strain upon physical resources, and upon the skin by which they are regulated. Years ago Professor Pettenkofer, before he had fallen from woollenite grace, experimented with a piece of flannel and a piece of linen, both previously dried, of equal size and weight, exposing both together in places more or less damp. He found that the wool was twice as hygroscopic as the "hemp," but the hemp absorbed much quicker than the wool, and re-dried also much quicker. "The quantity of water that can be absorbed by the different stuffs is much greater than is generally supposed. A woollen garment weighing five or six kilograms can absorb nearly a litre of water, which will add one kilogram to its weight, and to completely vapourise this water the body would lose 500 to 600 calories." Poor body! But in cases such as this, Count Rumford is generally constituted a final Court of Appeal, and to him let us turn. He, too, tested the hygroscopic qualities of different fibres, in equal quantities, "in a state of the most perfect cleanliness and purity," with, as regards those in which we are most closely interested, the following results:—

	Weight after 48 hours in Dry Room at 85 deg.	Weight after 48 hours in Ordinary Room at 45 deg.	Weight after 72 hours in Damp Cellar at 45 deg.
Sheep's wool, ...	1,000	1,084	1,163
Fine lint, ...	1,000	1,046	1,102
Cotton wool, ...	1,000	1,043	1,089

The philosopher was surprised, but was candid too. The issue was in opposition to his opinions, but he honestly recorded the results, and his deductions from them. Dr. Rutherford, who is so well acquainted with Rumford's investigations, and has so much approval to bestow upon his work, when convenient, has not a word to say upon this point. Rumford wrote—"As linen is known to attract water with so much avidity, and as, on the contrary, wool, hair, feathers, and other substances are made wet with so much difficulty, I had little doubt but that linen would be found to attract moisture from the atmosphere with much greater force than any of those substances, and that under similar circumstances it would be found to contain much more water. And I was much confirmed in this opinion by recollecting the great difference in the apparent dampness of linen and woollen clothes when they are exposed to the same atmosphere. But these experiments have convinced me that all my speculations were founded upon erroneous principles." If wool, although it at first absorbs wet more slowly, has a spongy capacity for holding large quantities of moisture, and yet does not dry nearly so freely as flax or cotton, then, keeping in view the vital necessity of maintaining heat, the deduction is inevitable that, on these grounds, wool is *not* the survival of the fittest material for underclothing. As the man said, after taking a short cut from the scaffold, that it was not the fall, but stopping so quick, that hurt him; so it is not getting wet, but getting dry, that is so dangerous. When wool gets wet, from within or without, it remains wet longer than either of the vilified vegetable fibres. Pettenkofer, in further support of Rubner's experiments upon human feet, said that "the renowned experimental chemist, Dr. Chilion, has proved, besides, that in linen fibres the decomposition of sweat absorbed goes on more energetically than in woollen fibres."

These are all summer considerations, all in favour of linen for summer wear. And as affecting the whole of the facts and figures



presented in this relation, the felting properties of wool must be borne in mind. The writer of a manifold ladies' column in the weekly papers lately had a good word to say for woollen-wearing generally, and for the Jaeger garments in particular, but added that "the machinations of the ordinary laundress makes the wearing of Jaeger garments very disheartening and expensive," afterwards repeating the assertion in reply to a vigorous remonstrance from a Jaeger representative. Now, it is a fact beyond dispute, that, as a woollen fabric shrinks and felts, it loses its primary and readily-admitted virtues. It does not afford so much warmth although it gets thicker, it is more quickly soddened and more slowly dried, and it soon loses its porous character altogether, so that, instead of carrying off the cutaneous secretions, it keeps them next the skin to work their worst upon the wool-wearer. The old faith in the curative properties of new flannel had so much to justify it, but the implied condemnation of flannel which was not new was fully warranted. With this reminder may be coupled the fact, equally unquestionable, that linen does not cause perspiration, or promote it. It gives the best results when perspiration is provoked, but does not, as wool does, increase it, and the good qualities of flaxen fabrics are improved and not impaired by frequent washing.

(To be continued.)



### Industrial Ireland—An Earnest Appeal.

**T**HOUGH there is in the conduct of this Journal a strict rule which keeps these columns free from politics, yet there are occasions when such a rule may be relaxed with advantage, and without, we hope, imparting to the pages of the Journal any semblance of partizan bitterness. The country, not only Ireland but the whole of the United Kingdom, is in the throes of a contest which is vital to its future prospects, and on an occasion so momentous as this we think it only right to say a few friendly words to all. We would base our remarks on the last clause of a resolution which was passed at the Convention of the 17th ult., the words of which are:—

"That we appeal to those of our fellow-countrymen who have hitherto been in favour of a separate Parliament to abandon a demand which

hopelessly divides Irishmen, and to unite with us under the Imperial Legislature in developing the resources and furthering the best interests of our common country." Passing by the opening words, which, however, point to a necessary commencement before the rest can follow, we would at once attack and dwell upon the concluding words. Perhaps in no part of the globe is a country to be found with so many natural advantages as Ireland. Her facilities in the way of agriculture—in so far as they are permitted by the extent of her territory—are abnormal, and yet they are not appreciated. Where on the face of the civilised globe are Land Laws so favourable to the tenant to be found as in Ireland? He has fixity of tenure; he has fair rents, judicially settled; he has free sale. Added to all, he has cheap labour to assist him, and he has the means of going to the Imperial Exchequer and borrowing the money which will turn his farm into a freehold property. Where Ireland is not territorially agricultural, she is mineral. Beneath the surface of her plains; within the outer crust of her mountains she has vast stores of wealth awaiting but the application of toil, science, and capital to bring them forth. In her water-power—marvellous in its amount and extent—marvellous, too, in the next to no use which has hitherto been made of it—she possesses a road to industrial wealth and prominence in manufacture. With the development of the science of electricity, and the modes by which water-power, through its agency, can be cheaply and efficiently turned to mechanical account, Ireland must hold a vast advantage over her neighbours as a producing market, *provided* she avails herself of the opportunity. And we ask, are all these advantages to be lost, to be annulled by agitation? Has Ireland not suffered sufficiently already from the ceaseless turmoil of political strife, the unsettling agency of seekers

after the impossible? The Imperial Parliament has shown, is showing, every disposition to make up to Ireland for the wrongs inflicted upon her in the days of ignorance and carelessness of her wants. Would Ireland as a nation, separate and dependent upon her own resources—resources she has hitherto neglected, and which must take long years in development—would she be then, cut off from the East and yet not in full touch with the West, more or less likely to progress and prosper than in her present national and political position? On this turns the whole question; on it the Union depends. If it can be shown that Ireland alone and practically friendless would be more progressive, more industrious, more enterprising, and less divided by internal strife than she now is, then a case for a separate Parliament is made out. But under a separate and independent rule what is to compensate Ireland for what she must sacrifice to obtain them? She would have to sacrifice her alliance with the strongest and most far-reaching power the history of the world has known. She would have to sacrifice her *entrée* into the markets that have been opened up and established by that power; at least she could only enter them as an alien and a stranger. She would have to break her connection with the country nearest to her shores, and which is at the present moment her best—if not only—customer for agricultural produce, and which is able and willing to take double or treble the quantity now exported, and more if forthcoming. These would be serious drawbacks to the prospects of prosperity; they would be powerful clogs on the wheels of Ireland's progress. Under existing circumstances she has none of these difficulties to contend with, she has none of these stumbling-blocks in her path. What stumbling-blocks there are come from within—are created by herself. Let her cast off the fatal fascination of her "darling sin"—agitation, and no longer follow the dictates of a lot of self-seeking agitators, who live by keeping up a constant ferment in the country. Let one portion of the Irish people give up the idea of living by the pulling down of the other portion, and let them realise that in this world of toil not even a century of agitation will enable the non-possessors to become the possessors of lands, or wealth, or position, without honest labour. Let us then unite—let us with a long pull, and a strong pull, and a pull altogether, set about the task of regenerating Ireland, not politically, but industrially, commercially, and educationally. Ireland requires no heroic measures of legislation to assure her future prosperity; she requires no heroic sacrifices on the part of her sons and daughters; but what she does require is the calm after the storm, the peace after the battle. She requires a set resolution in all to attend honestly to their various trades and occupations; to strive to advance themselves by honourable means to better and more prosperous worldly positions; to see to the bringing up of the youth of the country as honest, intelligent, and industrious citizens; to see to it that they enter upon their careers as men and women fully equipped educationally for the tasks before them; and when Ireland has resolved on this, she will soon discover that it is to her advantage to be linked to the all-powerful British Empire, to be compelled only to obey the laws of the British Constitution—a constitution under which the liberty of the subject is greater than it is under any other existent government, or than it was under any government enshrined in history.

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**SWITZERLAND.**—This country may be considered as an industrial one of the first importance; to all appearances endowed with numerous natural forces which, owing to the progress of electricity, are susceptible of being utilised, she is only at the commencement of her industrial development. The extension of industry is so much easier for her as she has capital in abundance in the old and rich cities, such as Geneva and Bale, where the commercial spirit has descended from generation to generation. The following data relating to the actual industrial condition of textiles only are extracted from official documents compiled in virtue of the factory law:—

Cotton, 432 establishments, with 36,238 hands; silk, 227, with 27,819 hands; wool, 47, with 3,528; trimming, 1,139, with 17,920; hosiery, &c., 86, with 3,574 hands; and linen, 12, with 722. Total for textile industries, 1,943 establishments, employing 89,901 hands.

Loom embroidery has largely developed at St. Gall, in Appenzell and Thurgovia. The number of machines has increased in ten years by 30 per cent., and that of the workmen in equal proportion.


As regards the number of workmen, the silk industry occupies the second rank in Switzerland. In 1890 the silk crop of the world amounted to 11,400,000 kilogrammes, of which quantity 5,000,000 were in Europe and the Levant, and 6,400,000 in Eastern Asia.

Notwithstanding her numerous hydraulic motors, Switzerland is obliged to have recourse to coal. Of this article she imports annually on an average about 900,000 tons.—Brief extract from paper by P. Müller in *Journal de Economistes*.





## The Education of the Peasantry.

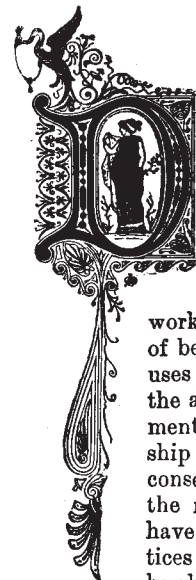


**N**EXT month we published a letter from Mr. D'Esterre Parker calling attention to the terms of the Royal Charter under which the Commissioners of National Education in Ireland hold office. Mr. Parker, in commenting on those terms, asserted that a study of the Charter would show that we required no new Acts of Parliament for the purpose of improving the system of education in vogue. The Charter he considers is all-powerful; it gives complete control to the Commissioners, who are not fettered by Parliamentary rules; who can abolish the rules made by their predecessors, and which have proved to be injurious to the education of the poor; and they can make rules which will encourage children to go to school; "in fact," he adds, "they are all-powerful in adopting any plan of education which they consider is the very best to promote the welfare of the poor." We have obtained a copy of the Charter referred to, and since studying it have come to the conclusion that to a very great extent Mr. Parker is correct. He is correct in his deductions, but seems hardly to have appreciated to the full the difficulties which would confront the Commissioners in bringing about any radical change in the system of education as now in use in the country, such as the substitution—or any great increase—of technical and industrial training instead of or along with the general literary education would involve. We have only been able to discover two Charters under which the Commissioners hold office: the Charter of 1845 and the supplemental Charter of 1861. The 1845 Charter provides that, "whereas, in order to promote the welfare by providing for the education of the poor of Ireland, it is expedient that the Commissioners of National Education should be invested with the powers and privileges herein contained." These "powers and privileges" are entirely concerned with the acquisition of schools, lands, and leases—namely, giving powers they had not before of owning property, the amount being limited to forty thousand pounds. The supplemental Charter concerned itself entirely with increasing the number of Commissioners and dividing the Board equally between Protestants and Roman Catholics. Now, the only words in connection with education in either Charter are the words we have quoted. Turning from the Charters to the "Fundamental Principles" underlying the system of National Education we read:—"1. The object of the system of National Education is to afford *combined* literary, moral, and *separate* religious instruction to children of all persuasions, as far as possible, in the same school, upon the fundamental principle that no attempt shall be made to interfere with the peculiar religious tenets of any description of Christian pupils." Numbers two and three are unimportant to our purpose, but the 4th fundamental principle is very much so:—"4. *The Commissioners will not change any fundamental rule without the express permission of His Excellency the Lord Lieutenant.*" In quoting this rule the italics are ours; in the former case they are as printed by the Commissioners. By the way, the wording of the first rule is peculiar. From it one would gather that, though no proselytising is to go on as between *Christian* sects and religions, yet in case of Jewish, Heathen, or Mohammedan pupils such could take place. This surely is not the intention. The Jews and others, under a strictly non-sectarian system of education, are as well entitled to non-interference as any other religious denomination. The subject is not indeed germane to the matter of this article, but it is so curious that perhaps this digression will be forgiven. Returning then to the main point—the powers of the Commissioners to alter the system of National Education as established—we must conclude that they have such power, subject, however, to the sanction of the Viceroy. But possessing the power theoretically and putting it into practice actually are two very different things. In the first place, there must be some system of literary education in the country; and, granting that a good deal of the present system is useless, if not actually pernicious, still a conversion of the present National Schools into industrial, technical, agricultural, or commercial establishments would involve far more than the sanction of the Viceroy. It must be remembered that, though the Commissioners are not hampered by Parliamentary rules, yet the Treasury is their paymaster, and the Treasury has to go to Parliament annually for the estimates. Any

fundamental or revolutionary change in the system of National Education would involve a fundamental and revolutionary change in the estimates submitted to Parliament. The sanction, therefore, of the Viceroy, the Treasury, and the House of Commons would be necessary. The Commissioners could have made rules which would have "encouraged children to go to school;" but, however necessary such may have been in the past, they now, with the passing of the new Act, become unnecessary. At no time could the Commissioners have *compelled* the attendance of children at school, though they might have induced a better attendance than has been the general case. The great underlying feature in the new Education Act is the system of compulsion; it is not the money grant involved. The money grant is a corollary; it is not the problem itself. When Mr. Parker says:—"Let the Board of Education be compelled by the voice of public opinion to reform their rules and regulations by making industrial education compulsory in their schools," we are with him heart and soul; when he adds, let them "do away with school and results fees, increase the salaries of the teachers, and give the children prizes for good conduct and general attention," we see the stumbling-block of the three controlling powers over the Board which we have named; but again, when Mr. Parker concludes, "make the industrial work suited to them (the children), and, believe me, the children will go to school, and the next generation will see Ireland a prosperous country," then we are fully with him. The whole subject is of vast importance; any man who takes it up and seriously considers and discusses it, as Mr. Parker has done and is doing, is materially aiding those who are endeavouring to place our National Education on a sound and practically beneficial basis. Enquiry and discussion must precede action, and the more who lend their assistance the sooner will the end aimed at be attained. Our object has been to study carefully the powers vested in the Commissioners of National Education and the difficulties which confront them, and the conclusions we have calmly come to are now set forth.



## The Young Artisan.



**D**R. F. A. C. Perrine, an able American scientist and authority on the education of the young, has been giving his views in the pages of a transatlantic contemporary. Dr. Perrine has come pretty much to the same conclusions as regards the States as we have done with regard to Ireland. Dr. Perrine advocates earnestly the advantages to be derived from a knowledge of the sciences. The young worker of the present day, he thinks, is earnestly desirous of becoming acquainted with the principles underlying the uses of the tools and arts of his trade; a knowledge from the acquirement of which alone we may look for improvement and advance. He notes the fact that the apprenticeship system is dying; that though the older and more conservative members of the trades have fought hard for the retention of the system, yet the younger members have gained the day, and now consent to remain apprentices in name only. Under these circumstances it would be absurd to try to combat this tendency; rather should it be recognised that in daily handling the tools in the workshop skill enough can be obtained, but that what is required is such knowledge as can never be found by the workman from his own experience. Artisans should, Dr. Perrine says, have a grasp of "mathematics, of physics, of chemistry, and of those truths and methods of science which have done so much towards making our modern world." As he points out, in that great and growing trade and labour giving art—electric lighting—no man knowing the absolute and necessary results that must follow would either mend an armature with defective wire, leave half-soldered the joint in the line, or his binding-posts unscrewed. As the necessary course of instruction, Dr. Perrine considers that while pure science—science for its own sake—would be too abstract and unpractical, yet mathematics, as they bear upon the daily problems of labour, should be taught, without in any way surrendering their exactness. The study of mechanics would follow from the inculcation of geometry, algebra, and trigonometry; machine designing would follow, and the theory of machinery. Springing from mathematics, too, we have physics, and all that is



required in the training of men for the electrical trades, hydraulics, and steam. Chemistry enters into nearly every trade, especially the textile manufactures; but it does not rest there, as in breweries and rubber-works a knowledge of chemistry will only open up daily opportunities for fresh research. Thus, though the workshop apprentice is necessarily debarred from the same course of study as an undergraduate at a college, he might yet be given many more advantages than he now possesses. His time for study is limited to the few hours at his disposal after his daily work is completed; but during these few hours he might be given that technical training which, blended with his workshop experience, would fit him to make a better fight in the hard struggle of life. Such, in brief, are Dr. Perrine's views, and, as already stated, they synchronise with those often expressed in these columns. The necessity of teaching the boy in the workshop considerably more than the ability to merely carry out certain tasks exists, and must be apparent to all. The difficulty is in the very short and precious hours at his disposal for educational purposes. Much, no doubt, under a better system could be done in the way of sending him into the workshop originally better equipped mentally than he is at present; but this would by no means obviate the necessity of providing the means for his educational progress, and facilities for his technical and scientific education to be advanced simultaneously and similarly with his proficiency in the arts of his trade. Many attempts at doing this are being made throughout the United Kingdom at the present moment, and it is pleasant to have the lines on which these schemes are being worked confirmed in the main by an authority of Dr. Perrine's eminence. To prevent our rising artisans from becoming mere perfected machines is the object in view. Without any subsidiary education to that obtained in the workshop, they must drift into mechanically following the methods of their predecessors, and in all probability following them in a deteriorated condition. This is even more likely to be the case in these later days when the subdivision of labour is so great. The tying of a man down to the daily production of the exact same portion, say of a watch or of a steam engine, produced as they are in such numbers and by such accurate and almost automatic machinery, is not calculated to develop either the intelligence or the intellectual capacity of the worker. Just as we have now at last learned the necessity of providing the student with a workshop and laboratory, so we must in the future endeavour to provide the worker with some sort of school in which, with the assistance of intelligent instruction, he can think out the problems of his toil, and endeavour to reach a higher level in the social and material scales of the busy world of labour.



## Practical Notes on Textiles.

### Linon Bleaching.

(Specially written for this Journal.)



**T**ECHNICAL education is a subject of the very first importance to readers of a Textile Journal, and there is ample evidence that manufacturers are at last becoming alive to the fact that this education is not a visionary idea, but one that demands the earnest consideration of all engaged in the textile industry. The question discussed is, Can the principles of an industrial art be universally taught like the three R's? This question has been carefully studied, and the opinion of the most earnest thinkers on the subject is, that art has its clearly defined, teachable features,

which can be taught in the same rational way that other things are taught, although it cannot be claimed by the most sanguine that all art can be thus taught, or that inborn genius can be produced merely by instruction. Everybody knows, or professes to know, of what materials cotton, silk, and woollen fabrics are made; but the same cannot be said respecting linen, for, unlike the three former, it is not expressed by the same name as the raw material from which it is made. In the old Latin the name for flax is "linum," and in languages derived from the Latin, "lin," "len," "lino;" but the northern name is presented under three forms, "flax," "flachs," and "vlasch,"

in English, German, and Dutch. Our common name then for the raw material is flax, and that for the manufactured goods is derived from the Latin name for flax; perhaps this may enable many persons to answer the question, "From what is linen made?"

Linen contains some colouring matters which can be removed by alkalies, such as potash, soda, ammonia, etc.; but it also contains other impurities, which require to be oxidised to become soluble. These impurities by oxidation acquire precisely the same properties as the former, so that the action of chlorine upon these bodies is simply to change them into bodies soluble in alkalies; this is the genesis or fundamental principle of linen bleaching.

The entire operation can be resolved into the use of three chemical agents—first, a diluted acid or alkali, which removes from the fibre the yellow colouring soluble in the ley or dissolved potash; second, chlorine, by means of which the matter insoluble in alkali is oxidised, and becomes soluble in alkali; third, diluted acids, which remove from the fibre the alkaline and chlorine compounds with which it has been treated. These remarks refer chiefly to linen yarns. Now, by the aid of the microscope, flax in its natural state is seen to be a vascular tube, articulated at intervals, partitioned, cylindrical, open at its extremities; these tubes are united by a gummy matter, which it is the object of steeping or retting to dissolve. After steeping, the gummy matter disappears, and there is seen a number of resinous scales of a brilliant appearance, unequally distributed over the fibres, and, as it were, attached to them by rough surfaces; these scales are of a light amber colour, darkened and completely soluble in alkalies; this colouring matter is a kind of rosin, but differing from other rosins by not being soluble in essential oils. Alcohol and ether extract 4·8 per cent. of a fatty matter of the consistence of wax, and an odorous greenish substance, to which the peculiar smell in linen bleaching is owing. This fatty matter can be saponified by caustic alkalies, and gives a solution which froths; carbonate of soda dissolves more of the greenish than of the fatty matter, and this at once explains why yarns treated with carbonate of soda are softer than those treated with caustic soda. Yarn, when treated with alcohol, is boiled in diluted caustic soda until it ceases to lose weight, which will be about 22 per cent.; the alkali acquires a tolerable dark brown colour, does not froth, and has no smell. Caustic potash and ammonia give the same result, and so will carbonate of soda, though in this case the action is slower. When the alkaline liquor is neutralised by the acid, there is a precipitation of yellow-brown flocculent, gelatinous matter, but the liquor remains coloured, containing matter not precipitated either by excess of acid or by addition of lime or baryta. The unbleached yarn, treated with cold water for a week, will only lose 0·5 per cent. in weight; boiled for 24 hours with water, the loss is 3·2 per cent.; boiled with water for seven days, renewing the water twice a-day, the loss is 16·4 per cent.; and boiled in water for a week under a pressure of five atmospheres, the loss is 18 per cent. The liquors from these operations have a feeble acid reaction, and are not precipitated by dilute acids or by baryta, but matters can be removed from solution by sub-acetate of lead. These characters of the solution show the idea of a resinous saponification to be inadmissible.

Carbonate of soda is neutralised when boiled with an excess of linen yarn, and carbonic acid is liberated. Sulphuret of sodium acts as effectually as caustic soda, removing 21·5 per cent. of the weight of yarn previously treated with alcohol, and after eight hours' boiling not the least trace of sulphuretted hydrogen can be found in the solution. Lime acts in the same manner as caustic soda. Carbonate of lime, in the shape of chalk, has a similar though slower action; but the lime and chalk have an injurious effect upon the fibre, if it is exposed to air while boiling with these substances. If yarn be thoroughly cleansed, and steeped in exceedingly weak chlorine water, it will be bleached in 24 hours, without losing weight or suffering in strength; if a stronger chlorine water be taken, the bleaching will be more rapid, and accompanied by a loss of 8 per cent. in weight, and its tensile strength will be nearly destroyed, because in the first case the colouring matter alone is modified, and in the second case the cellulose is actively attacked; the diluted chlorine water bleaches the grey matter only, so that it can only be depended upon to bleach this grey matter, but cannot be relied upon to bleach the fawn colour. No bleaching action takes place with dry chlorine upon dry linen exhausted by alkalies; the fibre may be disintegrated but it is chemically unaltered. Dry hypochlorous acid bleaches at once, but the fibre is destroyed. Concentrated peroxide of hydrogen bleaches in five hours, with a destruction of the fibre; but in dilute solutions of the peroxide,

## The Belfast Linen Trade Report.

DRAWN UP BY THE LINEN TRADE BOARD, APPOINTED UNDER THE SANCTION OF THE BELFAST CHAMBER OF COMMERCE.

**T**HE general condition of trade can hardly be said to show any improvement, for though the shipping branch indicates a little expansion, the home consumption of linens is believed to be less, and reports of dulness in the large distributing centres are still a common experience. This feeling has been intensified by the excitement of the general election during the past fortnight.

### FLAX.

The favourable indications respecting the growing crop reported last month can hardly be sustained at present, as reports from various districts are more or less conflicting, the changeable weather of late being unfavourable for an even and regular growth. The outlook, either as regards the home or foreign supply, is anything but of a reassuring nature, and points to a still higher level of prices for the raw material.

We subjoin a few reports received from our correspondents:—

**AUGHNACLOY.**—Flax crop in this district is but very middling, average length being under eighteen inches. All over the plant is thin and unpromising, but in some places it may improve if weather becomes warmer. **BALLYMONEY.**—Flax very variable. In dry light land it is looking well, some measuring three feet. On heavy land, however, owing to the continuous cold and wet, it will be poor and short. **BALLIBAY.**—Crop not at all good, and exceptions only here and there. **BALLYMENA.**—General appearance of flax about here is discouraging, and average length does not exceed two feet. **COLERAINE.**—Crop looking poorly. Colour in many cases is not good, and length in all fields quite irregular, one part being several inches longer than the other. Early sown flax is in bloom. **DUNGANNON.**—Flax very middling, and no good even fields may be expected. **LIMAVADY.**—Flax very variable, but as a whole it is poor. Length from eight to forty inches. **LISNASKEA.**—The crop presents a very poor appearance up to the present. **MAGHERAFELT.**—Crop on the whole looks good, but sunshine is much needed to mature the growth. Average length about eighteen inches. **MONAGHAN.**—Flax has improved lately, but heat much wanted. Low-lying fields are very bad. **NEWTOWARDS.**—Appearance not good, but with heat it is expected to be up to an average in yield and length. **OMAGH.**—Crop generally could not be looking better, some plants being four feet high, average length being about forty inches.

### YARNS.

There was a considerable business done since last month, not only in the range of line wefts, but also in warp yarns, in the finer counts especially. In fact, prime warp yarns are now difficult to find, owing to the scarcity of suitable material. Spinners are, to a large extent, well supplied with forward orders, and stocks on the market are very light, from medium numbers upwards. Coarse lines and also tow yarns are comparatively quiet, but prices remain unchanged, and for yarns in best demand quotations are quite firm, last month's tariff being maintained.

### BROWN POWER AND HAND-LOOM LINENS.

Demand for light power-loom bleaching cloth has to some extent fallen off, but manufacturers hold for late prices, the firmness in the

yarn market prohibiting any easier terms. Medium and heavy makes of cloth meet with a fairly steady demand, which takes off the production. Ballymena linens have not shown so much activity as previously, and manufacturers have been a little more easily dealt with; stocks, however, are in small compass. County Down linens, for bleaching, have been in very good request lately, prices of the several makes being firm all round, and stocks very low. In cloth for dyeing and dress linens there is little change to note, business passing being fairly steady, without any alteration in prices. Roughs are slow, and most descriptions of tow goods are dull just now, with a tendency to increase in manufacturers' hands. Drills are also in very quiet demand, but prices are maintained. A good many orders have been given out for crash, glass-cloth, and towelling, of a cheap class, mainly for exportation. The handkerchief trade is not perceptibly improved, but, on the whole, there is a better feeling in the market, as bleached goods appear to be in slightly better demand. In damasks and diapers a moderate business is passing, which keeps stocks from increasing to any extent, but on the whole this branch of trade is not so good as it was a few months ago.

### BLEACHED AND FINISHED LINENS.

*Home Trade.*—No improvement noticeable in this department; on the contrary, there appears to have been a falling off in demand, in sympathy, no doubt, with the dragging condition of the great textile industries across channel. The Parliamentary elections, following the half-yearly stock-taking period, have materially contributed to the general dulness of business at present.

*Continental.*—Trade with Spain and Italy shows a very large increase last month, but with France and Germany there is a falling off. On the whole, these four countries, according to the Board of Trade returns, have taken upwards of 10 per cent. more of linen piece goods, comparing the past half-year with corresponding period in 1891.

*United States.*—With the exception of handkerchiefs and the very poorest kinds of clothing goods, a very fair season's trade has been done to the present, and advices are more cheerful of late. The shipments from the United Kingdom for June, according to official figures, were 6·8 per cent. larger than in June, 1891.

*Other Markets.*—The Foreign West Indian trade is once more looking up, the shipments for June being very largely in excess of same month last year. North America shows a considerable improvement also, but with Australasia, Mexico, and Brazil the piece goods trade is smaller than in June, 1891.

For the half-year to June 30, the total quantity of linen piece goods, exported from the United Kingdom, shows an increase of 10·1 per cent., and values of 6·2 per cent., compared with same period last year.

### Prices Current for ordinary Line and Tow Wefts. July 14th, 1892.

| LEA NOS.   | 14  | 16   | 18    | 20  | 22   | 25  | 28   | 30   | 35   | 40   | 45   | 50    | 55                                                                                                | 60  | 65   | 70   | 75   | 80  | 85  | 90  | 100  | 110  | 120                                                                     | 130 | 140 | 150 | 160 |  |
|------------|-----|------|-------|-----|------|-----|------|------|------|------|------|-------|---------------------------------------------------------------------------------------------------|-----|------|------|------|-----|-----|-----|------|------|-------------------------------------------------------------------------|-----|-----|-----|-----|--|
| Line Wefts | —   | —    | —     | 7/6 | 6/9  | 5/9 | 5/3  | 5/-  | 4/7½ | 4/3  | 4/1½ | 4/-   | 3/10½                                                                                             | 3/9 | 3/7½ | 3/7½ | 3/7½ | 3/9 | 3/9 | 4/- | 4/1½ | 4/4½ | 4/7½                                                                    | 4/9 | 5/- | 5/3 |     |  |
| Tow Wefts  | 5/9 | 5/1½ | 4/10½ | 4/9 | 4/7½ | 4/6 | 4/4½ | 4/4½ | 4/3  | 4/1½ | 4/-  | 3/10½ | These prices are per bundle of 60,000 yards of grey Yarn, subject to the usual discount for cash. |     |      |      |      |     |     |     |      |      | 120 threads 2½ yds.—1 lea<br>12 leas—1 hank<br>16 hanks 8 cuts—1 bundle |     |     |     |     |  |

bleaching can be accomplished without injury, and with very slight loss in weight. Reference has been made to sub-acetate of lead; it is obtained by taking six gallons of water, and dissolving in it, when at the boiling point, 22·5 lbs. of acetate of lead, and 12·15 lbs. of litharge in fine powder. By treating linen with chlorine, great risk is run of rotting either fibre or cloth, so that the greatest care ought to be exercised; repeated weak dilutions of the chlorine may be a slower operation, but it has the merit of being safe. Flax fibre is difficult to bleach, owing to incrusting layers of pectin, mineral, gum, and colouring matter preventing the proper action of the bleaching

materials. The latest improvement in this process consists in first boiling the fibre in soap, then in water, and afterwards washing in cold water; the material is steeped in a bath of potassium permanganate, whereby all the incrusting substances and colouring matters are oxidised and removed. A washing in water is requisite, and to remove the red colour through the use of the permanganate; it is then steeped in a bath of sulphurous acid, and finally washed in clean water. By this new process it is claimed that the fibres thus acted upon are long, pliant, brilliantly white, and give silky, glossy yarns, far stronger than fibres bleached in the ordinary way.



Exports of Linen Yarns and Linens from the United Kingdom for the Month ended 30th June, 1892; and in the Six Months ended 30th June, 1892, compared with the corresponding periods of the Years 1890 and 1891.

| COUNTRIES.                                                            | MONTH ENDED 30TH JUNE. |                   |                   |                 |                |                | SIX MONTHS ENDED 30TH JUNE. |                   |                   |                  |                  |                  |
|-----------------------------------------------------------------------|------------------------|-------------------|-------------------|-----------------|----------------|----------------|-----------------------------|-------------------|-------------------|------------------|------------------|------------------|
|                                                                       | Quantities.            |                   |                   | Declared Value. |                |                | Quantities.                 |                   |                   | Declared Value.  |                  |                  |
|                                                                       | 1890                   | 1891              | 1892              | 1890            | 1891           | 1892           | 1890                        | 1891              | 1892              | 1890             | 1891             | 1892             |
| <b>LINEN YARN.</b>                                                    | Lbs.                   | Lbs.              | Lbs.              | £               | £              | £              | Lbs.                        | Lbs.              | Lbs.              | £                | £                | £                |
| To Germany, .....                                                     | 239,300                | 336,000           | 195,100           | 19,525          | 26,836         | 16,393         | 1,456,400                   | 1,733,300         | 1,409,700         | 120,014          | 142,144          | 117,727          |
| Holland, .....                                                        | 179,100                | 185,500           | 140,800           | 5,980           | 6,517          | 5,336          | 1,055,200                   | 1,122,900         | 944,100           | 38,022           | 38,965           | 34,693           |
| Belgium, .....                                                        | 130,300                | 189,200           | 155,000           | 10,022          | 16,744         | 12,149         | 826,800                     | 879,200           | 687,000           | 65,579           | 73,566           | 53,956           |
| France, .....                                                         | 139,700                | 114,800           | 100,100           | 14,312          | 13,178         | 11,297         | 712,700                     | 700,000           | 690,300           | 76,050           | 77,556           | 77,640           |
| Spain and Canaries, ...                                               | 269,400                | 352,700           | 1,685,800         | 10,326          | 12,216         | 56,570         | 1,945,600                   | 1,968,300         | 3,298,000         | 69,849           | 70,682           | 116,511          |
| Italy, .....                                                          | 51,200                 | 30,600            | 59,900            | 2,425           | 1,492          | 2,587          | 286,100                     | 204,600           | 243,000           | 13,754           | 9,963            | 11,251           |
| United States, .....                                                  | 264,700                | 29,200            | 57,900            | 6,579           | 1,044          | 1,676          | 651,400                     | 198,600           | 245,000           | 16,561           | 7,692            | 8,117            |
| Other Countries, .....                                                | 178,600                | 127,400           | 127,100           | 7,852           | 5,423          | 5,238          | 837,700                     | 838,600           | 907,300           | 37,464           | 38,261           | 39,448           |
| <b>Total, .....</b>                                                   | <b>1,452,300</b>       | <b>1,365,400</b>  | <b>2,521,700</b>  | <b>77,021</b>   | <b>83,450</b>  | <b>111,246</b> | <b>7,771,900</b>            | <b>7,645,500</b>  | <b>8,429,400</b>  | <b>437,093</b>   | <b>458,834</b>   | <b>459,343</b>   |
| <b>LINEN MANUFACTURES.</b>                                            | Yards.                 | Yards.            | Yards.            | £               | £              | £              | Yards.                      | Yards.            | Yards.            | £                | £                | £                |
| To Germany, .....                                                     | 214,800                | 364,700           | 345,600           | 10,773          | 16,976         | 17,241         | 1,762,900                   | 1,907,600         | 1,920,500         | 84,824           | 92,309           | 93,493           |
| France, .....                                                         | 210,100                | 165,500           | 91,600            | 9,414           | 7,503          | 4,202          | 1,365,100                   | 1,005,000         | 1,027,500         | 60,566           | 44,953           | 45,797           |
| Spain and Canaries, ...                                               | 110,600                | 174,200           | 492,000           | 3,871           | 6,573          | 21,118         | 701,000                     | 879,600           | 1,173,300         | 25,289           | 30,905           | 48,316           |
| Italy, .....                                                          | 47,400                 | 53,200            | 146,800           | 2,113           | 2,512          | 7,119          | 481,600                     | 478,600           | 586,800           | 19,900           | 20,316           | 25,727           |
| United States, .....                                                  | 16,627,000             | 6,886,000         | 7,359,200         | 321,938         | 137,460        | 149,468        | 56,178,900                  | 41,140,400        | 46,910,809        | 1,153,354        | 861,080          | 962,920          |
| Foreign West Indies, ...                                              | 1,791,700              | 1,467,400         | 3,290,800         | 32,895          | 28,689         | 62,926         | 11,786,000                  | 7,963,400         | 10,945,300        | 223,883          | 160,442          | 209,727          |
| Mexico, .....                                                         | 176,100                | 108,900           | 103,100           | 4,199           | 2,483          | 2,553          | 1,121,900                   | 865,200           | 704,700           | 26,691           | 21,394           | 17,482           |
| United States of<br>Colombia, .....                                   | 144,000                | 211,700           | 230,800           | 2,615           | 3,818          | 4,284          | 1,687,800                   | 1,667,300         | 2,001,200         | 27,963           | 29,103           | 33,203           |
| Brazil, .....                                                         | 369,800                | 322,500           | 238,600           | 12,064          | 9,668          | 6,122          | 1,435,800                   | 1,896,700         | 1,190,000         | 48,645           | 62,137           | 33,682           |
| Argentine Republic, ...                                               | 189,600                | 84,100            | 115,400           | 4,168           | 1,582          | 2,951          | 520,900                     | 305,700           | 298,300           | 16,080           | 7,115            | 8,907            |
| Philippine Islands, ...                                               | 33,700                 | 50,500            | 2,300             | 996             | 658            | 82             | 299,700                     | 640,900           | 210,800           | 5,766            | 11,443           | 3,796            |
| British North America                                                 | 324,100                | 493,000           | 690,200           | 6,241           | 8,759          | 13,372         | 3,331,900                   | 3,937,800         | 4,249,300         | 68,898           | 77,602           | 80,855           |
| British West India }<br>Islands & Guiana }                            | 110,000                | 121,800           | 148,300           | 2,219           | 2,591          | 2,994          | 1,032,608                   | 963,300           | 870,000           | 21,134           | 18,762           | 18,263           |
| Do. East Indies, ...                                                  | 301,000                | 318,600           | 178,400           | 7,104           | 8,625          | 5,623          | 1,865,000                   | 1,531,200         | 1,528,800         | 51,590           | 44,471           | 42,404           |
| Australasia, .....                                                    | 1,301,600              | 1,442,700         | 1,086,700         | 37,635          | 40,921         | 30,564         | 6,463,500                   | 5,845,300         | 5,779,300         | 187,408          | 168,353          | 155,777          |
| Other Countries, .....                                                | 1,739,900              | 1,205,700         | 1,291,300         | 41,141          | 31,200         | 31,731         | 9,027,800                   | 8,110,000         | 7,752,500         | 208,318          | 193,076          | 173,931          |
| <b>Total Plain, Un-bleached, or Bleached</b>                          | <b>20,957,600</b>      | <b>12,178,000</b> | <b>14,512,200</b> | <b>434,646</b>  | <b>272,598</b> | <b>324,409</b> | <b>89,245,300</b>           | <b>71,192,500</b> | <b>80,057,800</b> | <b>1,965,898</b> | <b>1,607,464</b> | <b>1,751,658</b> |
| <b>Total Checked, Printed, or Dyed, and Damasks or Diapers, .....</b> | <b>2,211,200</b>       | <b>1,015,100</b>  | <b>1,068,600</b>  | <b>44,589</b>   | <b>25,126</b>  | <b>27,155</b>  | <b>7,901,700</b>            | <b>6,275,700</b>  | <b>5,629,800</b>  | <b>180,640</b>   | <b>160,478</b>   | <b>139,714</b>   |
| Sail Cloth and Sails, ...                                             | 522,600                | 277,400           | 230,300           | 20,151          | 12,294         | 10,786         | 1,915,400                   | 1,669,800         | 1,461,500         | 84,271           | 75,519           | 67,908           |
| <b>Total of Piece Goods, .....</b>                                    | <b>23,691,400</b>      | <b>13,470,500</b> | <b>15,811,100</b> | <b>499,386</b>  | <b>310,018</b> | <b>362,350</b> | <b>99,062,400</b>           | <b>79,138,000</b> | <b>87,149,100</b> | <b>2,230,809</b> | <b>1,843,451</b> | <b>1,959,280</b> |
| <b>Thread for Sewing, .....</b>                                       | <b>255,700</b>         | <b>228,200</b>    | <b>193,000</b>    | <b>30,749</b>   | <b>27,346</b>  | <b>25,331</b>  | <b>1,490,400</b>            | <b>1,251,700</b>  | <b>1,235,700</b>  | <b>179,987</b>   | <b>155,005</b>   | <b>153,901</b>   |
| <b>Other Articles, .....</b>                                          | <b>.....</b>           | <b>.....</b>      | <b>.....</b>      | <b>115,640</b>  | <b>79,853</b>  | <b>80,957</b>  | <b>.....</b>                | <b>.....</b>      | <b>.....</b>      | <b>524,873</b>   | <b>463,552</b>   | <b>439,716</b>   |
| <b>Total Value of Linen Manufactures, .....</b>                       | <b>.....</b>           | <b>.....</b>      | <b>.....</b>      | <b>645,775</b>  | <b>417,217</b> | <b>468,638</b> | <b>.....</b>                | <b>.....</b>      | <b>.....</b>      | <b>2,935,669</b> | <b>2,462,018</b> | <b>2,552,897</b> |

Importations of Flax—Dressed, Undressed, and Tow or Codilla of:

| COUNTRIES.             | MONTH ENDED 30TH JUNE. |                |                |                   |                |                | SIX MONTHS ENDED 30TH JUNE. |                  |                  |                   |                  |                  |
|------------------------|------------------------|----------------|----------------|-------------------|----------------|----------------|-----------------------------|------------------|------------------|-------------------|------------------|------------------|
|                        | Quantities.            |                |                | Value of Imports. |                |                | Quantities.                 |                  |                  | Value of Imports. |                  |                  |
|                        | 1890                   | 1891           | 1892           | 1890              | 1891           | 1892           | 1890                        | 1891             | 1892             | 1890              | 1891             | 1892             |
|                        | Cwts.                  | Cwts.          | Cwts.          | £                 | £              | £              | Cwts.                       | Cwts.            | Cwts.            | £                 | £                | £                |
| From Russia, .....     | 145,537                | 155,336        | 128,150        | 182,132           | 194,731        | 173,581        | 847,276                     | 694,414          | 310,772          | 1,092,112         | 912,412          | 1,050,988        |
| „ Germany, .....       | 807                    | 2,118          | 4,571          | 1,403             | 2,754          | 5,740          | 16,379                      | 31,097           | 38,448           | 28,234            | 42,749           | 42,143           |
| „ Holland, .....       | 4,225                  | 9,475          | 8,363          | 11,993            | 24,292         | 17,294         | 78,253                      | 57,257           | 69,703           | 215,659           | 151,018          | 160,562          |
| „ Belgium, .....       | 21,006                 | 26,752         | 15,052         | 50,419            | 77,683         | 39,408         | 169,602                     | 183,663          | 178,065          | 467,989           | 516,699          | 469,433          |
| „ Other Countries, ... | 6,206                  | 7,974          | 3,084          | 8,042             | 9,031          | 3,192          | 26,088                      | 66,968           | 23,038           | 34,133            | 79,894           | 25,368           |
| <b>Total, .....</b>    | <b>177,781</b>         | <b>201,655</b> | <b>159,220</b> | <b>253,989</b>    | <b>308,541</b> | <b>239,215</b> | <b>1,137,598</b>            | <b>1,033,399</b> | <b>1,120,026</b> | <b>1,838,127</b>  | <b>1,702,772</b> | <b>1,748,494</b> |

EXPORTS OF BRITISH AND IRISH PRODUCE AND  
MANUFACTURES.

| SIX MONTHS ENDED 30th JUNE.                                               | 1891.        | 1892.        |
|---------------------------------------------------------------------------|--------------|--------------|
| Animals, living ... ..                                                    | £270,141     | £259,485     |
| Articles of food and drink ... ..                                         | 4,776,662    | 4,512,453    |
| Raw Materials ... ..                                                      | 10,444,303   | 8,913,895    |
| Articles manufactured and partly manufactured, viz. :—                    |              |              |
| A. Yarns and Textile Fabrics, ... ..                                      | 52,470,242   | 49,582,051   |
| B. Metals and Articles Manufactured therefrom (except Machinery), ... ..  | 21,439,329   | 16,677,756   |
| C. Machinery and Mill Work, ... ..                                        | 7,873,937    | 7,727,188    |
| D. Apparel and Articles of Personal Use, ... ..                           | 5,241,092    | 5,142,449    |
| E. Chemicals, and Chemical and Medicinal Preparations, ... ..             | 4,616,380    | 4,294,946    |
| F. All other Articles, either Manufactured or partly Manufactured, ... .. | 16,436,659   | 14,267,235   |
| G. Parcel Post ... ..                                                     | 497,507      | 483,544      |
| Total value,                                                              | £124,066,252 | £111,861,002 |

Monthly Reports.

(From our own Correspondents.)

Whilst we endeavour to obtain the most reliable reports from the best sources of information, it will be understood that we do not hold ourselves responsible for the views of our correspondents.

Irish.

DUBLIN.—Slackness in nearly all the markets continues; for linens, it is still without any noticeable alteration; the demand is quiet, but prices continue firm, especially for yarns. As regards woollens, no improvement can be reported. Trade generally is depressed, but prices are not worse than when writing last. To this state of affairs the piece market is an exception, fancy goods being in steady request, and machinery fairly well employed. The latest from the wool market is—With continued very moderate arrivals of wool, demand is fair, and prices much as last quoted. Hoggets, 8½d. to 9d.; ewe and wether, 8d. to 8½d.; seaside, 7d. to 7½d.; mountain, 6½d. to 7d. Silks and poplins unaltered. In connection with the trade in these latter, I may call attention to some material suitable for

Church Vestments

which Mr. Elliott, of Weavers' Square, has turned out to the order of the Right Reverend Monsignor Browne, D.D., President of Maynooth College. These silks and poplins are all of suitable colours for the purpose designed, and have, needless to say, given every satisfaction to Mr. Elliott's reverend patron. So much so, indeed, that he has given the manufacturer permission to place samples of these fabrics on exhibition in the College, in the hope that this may lead to others placing their orders for their church vestments with Mr. Elliott. There can be no doubt that there is a large opening of these home-made materials in ecclesiastical robes. The difficulty in the way of poplin—on account of its being a mixed material of silk and wool—no longer exists. It has long since been decided by the highest ecclesiastical authorities that the use of poplin in church vestments is strictly orthodox, and not contrary to canonical law. Monsignor Browne's action emphasises this, and I sincerely trust that the placing on exhibition at Maynooth of these materials will considerably increase the consumption of them in this way. I have something else to say about the silk industry, but as it has nothing to do with Mr. Elliott's successful attempt to prove the suitability of his manufactures for ecclesiastical wear, I shall defer my remarks until after I have had my say about the

Irish Industrial League.

This body is pushing on its work vigorously, and is continuing the house-to-house canvass of traders by deputations of members. This canvass on behalf of Irish manufacturers will no doubt do some good. It will in certain cases be the means of introducing them to traders, and it will, by the publicity given to it, rouse some of the public into action. But it will do most good if it induces our manufacturers, producers, and workers to study their own welfare, and turn out goods against which no charge of "unfinishedness" can be brought, and which can compete successfully in open rivalry with things of the same sort made elsewhere. Personally, I believe far more in this latter aspect of the case than in any hope of inducing traders to patronise "home manufactures" through patriotism, or of inducing the general public to pay a higher price or take an inferior article through the same sentiment. I do not for a moment mean to say that Irish-made goods are not in many cases not only better, but quite as cheap as their foreign rivals; but this is not the case in every instance. Where it is the case, or where the quality and prices are equal, then the efforts of the League towards pushing their sale will be successful. Again, where such is not the case, I do not believe that any

efforts of the Industrial League will have the slightest effect on the state of affairs. Patriotism is very fine in its own way, but when patriotism comes in contact with political, domestic, or commercial economy, patriotism has a knack of getting the worst of the encounter. As long as the League thus confines itself to working on strictly economic and common-sense grounds, they will do great good. If they depart from these lines, I don't say they will do any actual harm, but they will certainly fail to accomplish anything in the direction designed.

The Technical Schools.

My attention has been drawn to a long letter from Mr. Blair, of Glasgow, treating of the technical education now going on in the United Kingdom with regard to silk manufactures. Whilst admitting that in the Dublin schools many subjects are "admirably" taught, Mr. Blair proceeds to say that the Governors were desirous that something should be done to further the silk trade of Dublin, and with this end in view they approached the Operative Silk Weavers' Society, in Dublin, to ascertain their views as to the best way in which the desired end could be accomplished. The Society, however, expressed an opinion that "no form of technical instruction would be of any benefit to them, and," continues Mr. Blair, "displayed so hostile an attitude towards the opening of any class in weaving, that the Governors thought it advisable to leave the matter alone for the time, but would welcome any suggestions on the subject." The attitude of the Society in this matter is so extraordinary that it is almost past comprehension. It is in direct opposition to the whole tendency of the age, and is contrary to what is taking place in every other industry. Not only so, but it is contrary to what is going on in connection with silk in England. At Macclesfield, technical training in silk weaving is in full swing. At Leek, they are only waiting for the extension of their premises to add, amongst other things, weaving sheds to the instruction now given in bleaching and dyeing, &c., of silk. At Coventry, they sent a man specially to France to study the subject. He has returned, and is engaged in organising classes, &c. Manchester, while not laying itself out specially for teaching silk manufacture, yet has in its Weaving School silk-reeling machinery, and ribbon and piece silk looms, and the nature and manipulation of the fibre of silk is dealt with in the lectures on weaving. At Glasgow, where the weaving schools have been in existence for fifteen years, several silk looms are provided for the use of the students. With all this going on next door, so to say, how is it the Dublin Society have taken up the attitude they have? Could not some effort be made to send across say two members to inspect these English schools, see what is being done, observe the benefits arising, and then come home and convince their fellow-workers of the urgent necessity of the establishment of instruction in this trade? Mr. Blair says it is to be hoped the operatives will think better on the subject. "It is contrary to the whole drift of the intelligence of the age, and, if persisted in, will most surely demolish the Irish silk trade?" The past and present condition of the British silk trade, as also that of the Continental trade, was reviewed at considerable length in the columns of this Journal not very long ago. The decline and fall of the trade of Lyons, its revival and resurrection under intelligent efforts at instruction, were all shown as the indisputable results of neglect to learn, and energy in teaching. The Irish trade was incidentally touched upon at the time, and it is unnecessary to report what was then said. If the Dublin operatives consider that education—technical education—in silk manufacture is unnecessary, I see no other way of convincing them of their error than by practical demonstration. It is better that two of them should be sent to look into the bearings of the case in England, than that, owing to the foolish attitude they have now taken up, the silk trade of Dublin should cease; for sooner or later that must be the eventual result, if Irish manufacturers do not keep pace with their neighbours. Silk weaving is no exception to the rule which governs other industries, and without knowledge failure is inevitable.

LURGAN.—The linen cambric trade here is just as dull as when last writing; the old shipping houses are the only ones who keep fairly going. The excitement produced in the political world by the general election has seized hold of the large manufacturers, who are going slow till the issue is known; some of them have expressed themselves as likely to withdraw to the other side of the channel if this country is separated from England. Linen cambric is still wanted for hemstitched handkerchiefs, but it is very hard to get paying prices. Linen cambric handkerchiefs slow; linen handkerchiefs (boiled yarns) are not in any better demand. The turn-out from hand-looms, on account of holiday, is a little improved, but not up to anything like former years. Power-loom manufacturers still keep well employed, but not to order. Machine hemstitchers are pretty favourably situated. Diapers (bird-eye), are in greatly improved demand. Damasks, sheetings, &c., are in fair request.

NEWTOWNARDS.—The manufacturing industries in Newtownards are not at present in a very brisk state, the hand-loom weaving trade is dull, and the embroidery hands are not fully employed. These, it is thought, will improve after the Scotch holiday season has ended and stock-taking over. The factories in the town are fairly busy, and these render the operatives less dependent on the hand-loom weaving, and the embroidery trades. Mr. Grant's new factory, for weaving skirtings, &c., will soon be at work, the looms having been delivered during last week. The flax crop looks fairly healthy, and promises to be a good average. The acreage is estimated to be about one-third less than last year in this neighbourhood.



## English.

**BARNESLEY.**—There is little change to note as regards trade in this district. Many firms have been stock-taking, and this has caused business to drag in some departments, as has the electioneering, towards the close of the month. Production generally has been as large as in any month during the year, and the prevailing opinion is that business will keep fairly good for some months to come. The demand for sheetings and bed linens generally has been maintained, and there is a better outlook for drills, both plain and fancy, as there have been many inquiries for the export trade. Carpet and floor linens keep up to an average sale. The demand for table and such-like linens has improved slightly, the orders being mostly for the Continent. A rather slower business has ruled for plain and dyed drabnets. Narrow goods, as tray, kitchen, pantry, toilet cloths, towellings, &c., have had a steady sale, the demand being equal to the production. The hand-made linen trade shows no signs of animation. Prices generally for all kinds of linens are fairly good, considering the very keen competition, both by home and foreign manufacturers, which is prevalent; and producers are, on the whole, satisfied, when taking into account the unremunerative state of the textile trades generally at the present time.

**LEEDS.**—An improvement has taken place in this district for many kinds of worsteds and woollens. Repeat orders for the winter trade have come in fairly well, and this fact has put manufacturers into a rather better position than they expected a few weeks ago. Worsteds and serges are still meeting with much favour, producers of the latter being extremely busy, especially those who are making goods of a fancy nature. This applies both to the home and foreign trade. Worsteds in plain styles are meeting with a little more inquiry, and fairly good orders have recently come to hand for Canada and the United States, notwithstanding the high tariff in the latter country. Tweeds and cheviots are selling well, especially those adapted for mantlings and ladies' wear generally. The ready-made clothing branches, although they have shown an improvement, are still taking orders rather below the average; but, notwithstanding this, taking the Leeds district as a whole, trade is much better than during any of the preceding months of the year, and prices are also a shade better, although merchants invariably try to beat them down to a very low rate.

**BRADFORD.**—At the opening of the London wool sales, the firmness of prices seemed to give a healthier tone to the trade in this district, but with the downward tendency of rates towards the close of the month, an uneasy feeling has since been apparent. The General Election has also had a rather quieting effect upon business, and although wools have shown but slight change in prices, still sellers in some cases have taken rather lower rates where good sales could be made; but even this fact has not tempted buyers to lay up stock, the rule being to purchase for immediate wants only. The yarn branches have been quiet, and there has been a very dragging business, both for home and export account. In two-folds, trade has only been of a moderate character, and what has been done has been at low rates, on purpose to keep machinery employed. In alpaca and mohair yarns, a falling off has been noted. The piece trade is in no better state than the yarn branches, although more inquiry has been made for fancy goods in low qualities, and also for the plain kinds of worsted coatings. Prices for these are very low, and leave little margin for profit.

**MANCHESTER.**—Our markets day by day evince an amount of dullness that no sensational events can arouse. Orders are neither numerous nor bulky, as in times past; in fact, they are of a hand-to-mouth character. The elections have also overshadowed every effort to make business. It is something unusual and novel to find grave, staid, commercial men throwing themselves into the political struggle with all the vivacity and recklessness of boys released from school. There is certainly no absolute block, although the market is stocked by over-production. The failing export trade in coloured goods is the cause of much anxiety, nearly all descriptions of fancies have accumulated in stock, and the woollen trade is suffering in the same way from hostile tariffs in every direction. The daily sales of cotton average from 4,000 to 5,000 bales, at something like 3-56d., but there is little doubt this figure will be reduced. A panic in the cotton market has been caused by the failure of an old and respected firm in Liverpool. The failure is said to be due to the great fall in prices, the firm having a very large stock of the raw material. The losses of the Oldham Cotton Spinning Companies, as just announced, are more numerous and larger than have ever been as yet submitted to the shareholders. Nine show profits amounting to £5,698, and sixteen give their losses at £10,734, dividends declared in six companies, nineteen *nil*, average under two per cent. The whole of the stock-takings for the end of June show that profits more or less have been made by twenty-seven companies, and losses by twenty-seven, leaving a balance deficit of £3,982. The whole of the companies are represented by these figures. The Albion Company has lost, for the half-year ending June, £3,700. It cannot be said that spinning shows a healthy state of affairs. The Paghouse Mill Company, Haslingden, has failed; it was formed in 1877 for spinning, weaving, and sizing. The causes of insolvency are alleged to be depression in trade, the fall of fully 25 per cent. in the price of yarns, and competition in business. In cotton cloth manufacturing a very old established firm in Pendleton has found it necessary to call a meeting

of its creditors, and another very old firm in Bradford, Manchester, has voluntarily wound up. There are other casualties in our cotton industry of a minor nature, but not sufficiently important to give details. The foreign markets give no indication of an improvement, but rather the reverse. Outside influences, combined with the most unsatisfactory statements from abroad, with cotton slowly but surely declining, the Eastern exchanges falling, completely check all operations, all speculation leaving doubt and difficulty in trying to gauge what course to adopt without committing a serious financial blunder. On India and China account some low offers are pending that are considered profitless. For Egypt, buying to a moderate extent is spoken of by the acceptance of terms hitherto declined. For the Continent nothing worth notice either in the way of cloth or yarns. The rupee has again fallen  $\frac{1}{4}$  per cent. Canadians find they can do business across their border as well as here, or even better. This is another serious drawback to our export trade; we are hemmed in all round. The looms throughout Lancashire are far from being fully employed; in fact, many places are absolutely at a standstill for want of orders. There is an unmistakable sign of a down-going tendency of trade both in cotton and woollen textiles. The retail business, for it is in no sense wholesale, is so featureless and unprofitable that manufacturers declare it is barely sufficient or worth their while to carry on the trade. This is a gloomy way of putting affairs, but unfortunately it is the truth. If every allowance is made for the disposition of merchants and manufacturers to consider that a trade which does not increase is as bad as a trade which decreases, the present is one of the bad times, when the chief consolation is that it may yet be even worse. The home trade in manufactured goods is undoubtedly dull; greater anxiety for novelty (which only leads to a very limited extent of business) is exhibited by buyers. Flax continues firm. Linen sales, though small, are at least free from the irregularities that prevail in other textiles. In medium and fine linen cloths the pure bleach and tasteful finish so agreeable to the eye of the Irish fabrics takes the lead in orders, especially in napery, and for special ornamental purposes. It is, however, to be hoped that when the present political struggle for supremacy is at an end, we shall be enabled to give a more cheerful account of our trade and commerce.

**LONDON.**—There is very little of importance to chronicle in the dry goods trade of the city since I wrote you last, the market continues generally weak and unsettled, and business is much restricted all round, nor can we expect anything else for the next few weeks to come, until the country has settled down. Many of the city houses have adopted early closing until the end of August, and there is a general exodus of the assistants to take their usual holidays. In the meantime, however, there is a good deal to be done in taking stock and clearing up for the half-year. Some of the city companies have already declared their dividends. Messrs. Pawson & Co., Limited, have declared an interim dividend for the half-year ended June 30th, 1892, at the rate of 6 $\frac{1}{2}$  per cent. per annum (free of income-tax) on the paid-up capital. In city circles this result is considered most satisfactory in view of the depressed state of trade during the half-year, so that shareholders may congratulate themselves. I have taken occasion more than once to refer to this company, which has continued uninterruptedly to pay for some years a similar dividend, and to steadily develop its connections. Messrs. Devas, Routledge & Company, Limited, announce the payment of an interim dividend at the rate of 5 per cent. per annum (free of income-tax) for the half-year ending 30th June, 1892. The Fore Street Warehouse Company, Limited, have also declared an interim dividend at the rate of 5 per cent. per annum. What the remaining companies may declare is not yet publicly known, but the outside impression is that there will be little, if any change. Some of the larger private concerns expect a fairly satisfactory result, taking everything into account, but there are unfortunately a few who will close their accounts with a very light credit balance, but I do not anticipate anything of a serious nature transpiring. In the export trade, particularly to the East, business could hardly be worse, and it is greatly to be feared that before the year is out we shall witness a great deal of trouble. The fall of the Rupee, which has hardly touched bottom yet, has paralysed the entire trade; day-by-day houses of considerable importance are being helped in their finances, but this cannot last much longer. The stoppage of the New Oriental Bank has hastened matters, while other similar institutions have been severely shaken by heavy losses. From Australia advices are a little more assuring than they have been for some time past, but one feature of that market should not be overlooked. Merchants and quite a number of them who had amassed large fortunes have, in many cases, been allured into the hand-loom speculation, which is now a matter of the past, but they have come out of it much poorer and wiser men. The Cape and South African trade generally continues good, but with other markets closed there is the danger of merchants and manufacturers pushing too vigorously in this direction. We have at the present time several important Canadian buyers in the market, who no doubt will pay Belfast a visit. In the making-up trade there is some briskness, manufacturers are busy completing replenishing orders, and I understand a good deal of work is being given out for the coming season. Milk Street agents report a moderate amount of small orders, chiefly to sort up stocks, but the whole volume of business being done at the present time is small. In the cambric handkerchief trade a few respectable lines have been booked, but there is a want of tone in the market. So far as I can gather even the election has not produced a single speciality; years ago, in cotton designs, there were some clever productions which sold well, and



ran into many repeat orders. I cannot close without saying that the city houses are looking forward to a good season, and are making active preparations.

**Scotch.**

DUNDEE.—Continued quietness marks the current of trade, and the pending elections have absorbed so much interest that business naturally suffers a good deal. *Flax*.—The market indicates strength, as regards prices, and a little more business has been done of late. Stocks of all kinds are light in first hands. *Yarns*.—Demand continues fairly good for both line and tow sorts, and previous quotations are well supported. Prices of Jute yarns remain low, but rather more business has been done of late. *Linens*.—No particular change to note in regard to demand for linens; coarse goods are slow, but the finer descriptions have received more attention lately, and manufacturers are pretty well supplied with orders. Jute goods move off very slowly, and prices are unremunerative.

| Scotch Yarns (1st Quality)      |    | Per Spl. |    | Per Bundle. |    |
|---------------------------------|----|----------|----|-------------|----|
| FLAX.                           |    | s.       | d. | s.          | d. |
| Dark 1½ lbs. per spl. or No. 32 | 28 | 1        | 2½ | 1           | 3  |
| „ 1½ „ Warp                     | 28 | 1        | 2½ | 1           | 3  |
| „ 2 „ „                         | 24 | 1        | 3  | 1           | 3½ |
| „ 2½ „ „                        | 22 | 1        | 3½ | 1           | 4  |
| „ 2½ „ „                        | 20 | 1        | 4  | 1           | 5  |
| „ 3 „ „                         | 16 | 1        | 5  | 1           | 6  |
| Tow.                            |    | s.       | d. | s.          | d. |
| 3 lbs. Dark Warp                | 16 | 1        | 3  | 1           | 4  |
| 3½ „ „                          | 14 | 1        | 4  | 1           | 5  |
| 4 „ „                           | 12 | 1        | 5  | 1           | 6  |
| 5 „ Warp Medium                 | 10 | 1        | 7  | 1           | 8  |
| 6 „ Dark Warp                   | 8  | 1        | 8½ | 1           | 9½ |

**Continental.**

THE WURTEMBERG LINEN INDUSTRY IN BLAUBEUREN.—The business year which has just passed, brought with it the most unusual difficulties both in the sale and in the manufacture of linen goods. The production was, therefore, greatly limited, whilst through the winter the working hours were shorter. In the autumn an alteration in the style of the boilers, which had for long been intended, caused a cessation of all work in mechanical weaving for six weeks. In spite of the present state of business, which can not be described as very favourable, the extension and improvement of the different branches is to be further proceeded with, but all large building works are to be deferred until the arrival of better times. The total result of last year is less favourable than in the preceding year; the decrease in the production has made itself felt in all the branches, for the actual expenses remain about the same, although the same amount of work is not got out of the machinery. The current year has introduced a certain improvement in the trade, but the further development of the business is entirely dependent upon the result of the coming harvest. If it is a good one, it cannot fail to favourably effect the textile industry. The balance shows a pure profit of 45,701,196 marks, after the necessary sums had been carried forward. Of this it is intended to devote 4,570,10 marks to the reserve fund, and to declare a dividend of 4½ per cent. to the shareholders. 7,000 marks are to be carried forward to a fresh account.—*Kuhlow's German Trade Review.*



**United States Market.**

(From our Special Correspondent.)

NEW YORK, June 30th, 1892.

**O**UR linen market has at last had a genuine bit of excitement. The long-continued rumours that certain shipments of an Ulster house were under customs examination for under-invoicing were proved to be well founded when to-day our *Morning Advertiser* published a full column giving the details. They are too long for reprinting here; but it seems that about £7,000 worth of linen goods are involved, and that the agents at this side will be compelled to pay something over £1,200 penalty. The *Times*, which is very fair in reviewing the case, says:—“The firm recently imported \$35,000 worth of closely-woven linen goods. Alfred C. Dutcher, the Government expert in linens at the appraiser's stores, found that, in his judgment, the goods were undervalued on the firm's invoices from 10 to 20 per cent. The importers appealed to the United States general appraisers. They showed that they could buy the same goods outright in Scotland and Belgium cheaper than they were invoiced. They also argued that the valuations of experts on the goods in question differed as much as their own valuations and those of Mr. Dutcher. General Appraiser James A. Jewell, however, agreed substantially with Mr. Dutcher, though he cut down a good many items, and in several instances sustained the invoice prices, lowering the total advance to about

of General Appraisers, but will pay the heavy penalty usual on such cases of undervaluation, whether intentional or unintentional.”

The cutting down of the advance of valuation to 12½ per cent. saved a very heavy penalty, as the advance of 12½ per cent. involves a penalty of 25 per cent. in addition to the regular duty, whereas an advance of 20 per cent. would have involved a penalty of 40 per cent. in addition to the regular duty. No doubt the invoices were made out in good faith, but the appraisers at this side have great power in their hands, and when they get an idea that there is an undervaluation, are difficult to deal with.

The *Journal's* able article, “Belfast and Chicago,” has attracted noteworthy attention during the past week. First, its strenuous advocacy of a complete representation of Ulster's chief industry at Chicago; secondly, its disposal of the “prohibitive tariff” question by actual comparison of the values of exports of linens from the United Kingdom to the United States during the first five months of 1890-92. We must have linen goods, and even an import of 100 per cent. would not be “prohibitive.” The opposition to exhibiting, upon the ground that “trade secrets” might be revealed, is most laughable. Why, the goods would be locked up in show cases; and if a person were in search of “secrets” he'd only have to go to the nearest retailer, and invest a few shillings! Send on the goods, and don't let Germany and France walk away with poor little Ulster! Germany is doing harm enough as it is. She controls what we call the “fancy” end, and her housekeeping linens are waxing stronger and stronger in the contest every year. And what the St. Gall people have accomplished in injuring your handkerchief industry needs no recounting here. Trade in handkerchiefs is seasonably dull, and importers are more concerned in taking account of stock than in looking for business. The retailers have had their day for a while. Their customers are hurrying away to the seaside and summer resorts, and their wants are filled to a great extent. The customers looked for now are the jobbers from far-away points. They are dropping along slowly, but will not appear in force until 4th of July week is over. There will be a general closing up on Saturday, July 2nd, until Tuesday, the 5th, and the boys will have Sunday between for going to church or fishing. By the 8th or 9th the Hebrew gentlemen from the South will begin looking around to place orders for later delivery, and as our country is really in a very prosperous condition we should have good business. In cotton fabrics, especially shirtings, both common and fine, demand is in excess of supply, and as far as the shirt and collar trade is concerned, why there never was anything like it in our business history.

4/4 linens are, of course, the moving end of the linen trade, and there should be no let-up during the year. Prices are well maintained. In view of the situation of things with you, a man that would sacrifice his 4/4 linens would be a person out of his mind. There are rumours of repudiation of contracts here and there by the home houses, and of offers of various sums to have Troy contracts cancelled. But one cannot trace these to authentic sources.

Mr. James Girdwood, who recently sundered his connection with William Liddell & Co., has established himself in handsome fashion at 28, White Street. He has secured the linens of Webb & Co., of New-towards, and will be a partner in the American end of the business. His old trade is dropping fast into his hands, and this proves the popularity of the man.

Mr Robert M'Bratney, manager here for York Street Flax Spinning Company, sailed for your side on June 29th.

**TRADE PROSPECTS.**

ON the whole trade is steadily reviving, this, too, despite the hot weather and politics. The primary cause is clearly attributable to the improvement in crop prospects, which, notwithstanding the great drawback of a late cold wet spring, are much better than was to be expected. Complaints of slow collections are fewer, and money is everywhere abundant, and interest rates low. At all the larger western distributing points trade generally is above the average, though at certain river points it is barely satisfactory, notably—St. Louis and Kansas City. At Detroit and Milwaukee business equals that of last year, and at Minneapolis and St. Paul it exceeds it, lumber being active, and output of flour the largest on record for any one week—214,000 barrels. At New Orleans, sugar is quiet and cotton lower. At Pittsburgh, demand for finished iron and steel is stimulated by imminent trouble over the wages scale; but crude iron is very quiet; and glass moving very satisfactorily. At Chicago, business in nearly all lines is increasing in volume. With the single exception of wheat, receipts of all cereals are greater than for the corresponding period last year. Slight decreases are noted in hides, wool and dairy products, but increases in dressed beef, cured meats, lard, cattle, hogs and flour. The heavy exports of gold are affecting the stock market, which is not so strong as it was a week ago.

The business failures occurring throughout the country, during the seven days ended with last Saturday, number 179, as compared with a total of 192 the previous week. For the corresponding week of last year the figures were 253.—*Chicago Industrial World.*

**CANADA.**

THE business outlook in dry goods during the immediate two weeks has wonderfully improved. It is true that in the early part of the month the



far from reasonable, with the result that the retailers did little or nothing, and their dulness, in the natural course of events, reacted on the wholesalers. Now, however, matters have brightened up. In wholesale circles the tone is not only hopeful, but present trade is brisk, all through the lower provinces and the west, according to one big house. The conservative policy pursued by the retailer has changed to an extent positively unexpected. In point of fact, the dull winter compelled country dealers to practically starve their stocks, and those who could afford to buy only bought the smallest possible quantities. This naturally resulted in a depletion of staple goods, which retailers all over the country urged on, not only by the bright weather, but by the extremely encouraging crop reports, are eager to fill. Your correspondent has interviewed four of Montreal's leading wholesale dry goods firms, and each and everyone are feeling good over the improved state of affairs.

Another point worthy of note, and one which shows the prosperous trend of trade, is the fact that the number of failures reported during the past few months is much less than for the same period in previous years.

A curious circumstance in connection with the wholesale houses, and perhaps not pleasant news for the travellers, has been becoming very manifest of late years. Several wholesale men have told me, and I have confirmed it by personal inquiry, that the retailers are gradually adopting the practice of visiting the wholesale houses themselves, and making their own selection, instead of buying from the drummer. Dealers as far west as Peterborough are known to make this a regular duty twice every year, and if the custom grows, the dry goods traveller must look out for his laurels.

To sum up the retail dry goods situation in Montreal, it may be said that business is decidedly good.—*Canadian Dry Goods Review*.



#### GERMANY AND THE CHICAGO EXHIBITION.

A MARKED alteration in the inclination of manufacturers to exhibit at the world's exhibition in Chicago has lately been manifested. The question of exhibiting is no longer treated with so much zeal as before, in fact the advantage of doing so seems to have greatly decreased in the opinion of the different representatives of our industry. We have noticed that a number of firms, in fact whole branches of industry, who had not quite decided to exhibit, have now settled not to do so, and what has caused still more surprise is that a number of houses, which had already consented, have now withdrawn their promise.

The reason for this is in no way connected with Chicago or America, but is really to be sought in the plans for an exhibition in Berlin, which have lately been brought before the public. A considerable portion of the German business world is filled with the idea that it is quite unnecessary to take part in the Chicago Exhibition.

It is thought that by contributing to the Berlin Exhibition an increase of trade and custom will be more easily obtained than by contributing to Chicago, and that by avoiding the expenses of the Chicago Exhibition, that held in Berlin may be drawn up on a much more magnificent scale. Gradually, we have come to look upon the Chicago Exhibition from a national point of view, and it cannot be denied that we have much reason for doing so. There are numerous branches of industry which can expect to reap no advantage from exhibiting in Chicago, and if they do exhibit, then it is only in order that Germany may not be behind other nations. It should be, however, remembered that a World's Exhibition means something more than the gaining a market in the country in which the Exhibition is held; in addition the world's market is concerned. The buyers of every country of the civilised world will meet together at Chicago; they will prove the wares exhibited; they will discuss the prices, and compare them with others; and when they have drawn their own conclusions, they will give their orders to those whose capabilities seem the greatest.

For instance, in Chicago as many visitors are expected from the North and South American States as from East Asia. But to these very lands the German export is already pretty considerable, and we have every reason to put forward all our energy to endeavour to maintain our position in their markets. Several branches of industry have recognised the importance of the Chicago Exhibition for German industry in general. They are prepared to exhibit in Chicago, although they do not expect any improvement in the export trade to North America. They know that the matter is not alone concerned with the North American Union. It is a pity that this sensible view of the matter is not more common. But not only in the interests of the maintenance and extension of our trade with the above-mentioned lands, but also in the interests of the Berlin exhibition, it is necessary that our industries should be well and fully represented at Chicago. The idea that the weaker the representation in Chicago, the better will be the representation given in Berlin, is by no means correct. First of all, a considerable period will elapse between the exhibitions of Chicago and Berlin, and during this time the disadvantages of not contributing to the former will be very acutely felt.

The success of the Berlin Exhibition would be much more certain if the German industries had already shown their power in Chicago. This point should not be forgotten by those whose gospel is that the Berlin exhibition would be damaged by a too zealous participation in 1893. In conclusion, foreign nations would be less inclined to compete here in

Berlin if Germany did not take her proper position at Chicago. The example set by us in America would possibly be imitated when our exhibition was held, which would be likely to reduce the undertaking from an international to a national exhibition. All these reasons together compel us to adopt the view that it were disadvantageous and a matter for regret if the Chicago Exhibition was not properly patronised by Germany. The Berlin Exhibition should not be allowed to stand in the way. In the interest of German industry both exhibitions should have an equal amount of attention devoted to them.—*Kuhlow's German Trade Review*.



#### Endowment of Technical and Agricultural Education in Ireland.

**M**R. R. HUNTER PRINGLE, writing in the *Farmers' Gazette*, calls attention to the important minute made by the Lords of the Committee of Her Majesty's Privy Council on Education on 22nd of April last, which runs as follows:—

1. Grants will be made in Ireland in aid of Technical Instruction given under the Technical Instruction Acts.
2. The grant in aid will be made to the school aided by the local authority, and will be equal in amount to the sum contributed by it out of the rates for instruction in subjects other than those for which the department gives aid under the Science and Art Directory, provided that the subjects of instruction have been approved by the department, and that the inspector of the department reports that the instruction is properly given.
3. The programme of instruction, with the arrangement made by the local authority for its aid, must be submitted to the department at the commencement of the school year for sanction.
4. The grant will be paid at the end of the school year on the certificate of the officer of the local authority, showing the amount contributed out of the rates, accompanied by a detailed statement, certified by the committee or managers of the school, of the expenditure of this money on subjects of instruction approved by the department, and not aided under the rules of the Science and Art Directory.—(By order)

W. D. DONNELLY.

"A Board of Guardians is already empowered to levy a rate of one penny in the pound for the purpose of providing Technical Instruction. Furthermore, in 'An Act to amend the Law relating to technical instruction (26th March, 1891),' a local authority may 'make such provision in aid of the technical or manual instruction for the time being supplied in a school or institution outside its district as may, in the opinion of the authority, be necessary for the requirements of the district in cases where similar provision cannot be so advantageously made, by aiding a school or institution within its district, and provide or assist in providing scholarships for, or pay or assist in paying the fees of, students ordinarily resident in the district of the local authority at school or institutions within or outside that district.' Mr. Pringle goes on to say—"The importance of the minute of 22nd April, 1892, cannot, and I sincerely trust will not, be overlooked by those who are interested in and affected by the prosperity of agriculture in Ireland. We are dealing with a question in which (*mirabile dictu*) politics cannot be said to take part. The improvement of Irish farming and the development of the resources of this country are known to be desirable objects, no matter what party be in power or what political leader we follow.

"With such encouragement given as is denoted by the minute referred to, it becomes the bounden duty of Boards of Guardians to take advantage of it in the interest of those whom they represent. Of my own personal knowledge, I am aware that not only are local guardians most desirous to assist in the introduction of agricultural and technical education by means of practical and illustrative systems, but that the step would be heartily supported and recommended by the inspectors of the Local Government Board. It is but right and proper that before permission is given to borrow money or levy a tax for novel purposes, a close investigation should be made by authorised inspectors, examiners, or scrutineers; on that score there can be no complaint.

"It would appear that under the Act, amended and supplemented as it has been, the designing of agricultural and technical education is given over to Boards of Guardians subject to the approval of the Science and Art Department. This is in precise accordance with my hopes, as set forth some time since in the scheme for the establishment of provincial farms for practical instruction, demonstration, and seed-growing purposes. Let us for a moment study the position and powers of a county under the Technical Instruction Act, as supplemented by minute of 22nd April.

"There are in County Galway eighteen baronies and ten unions. In 1881 the valuation of rateable property was returned as £475,713, and a penny rate levied on this sum would give £1,982 2s. 9d. per annum. If the various unions of the county agreed to work in conjunction, and establish one centre for agricultural and technical instruction, they would be entitled to a grant from the Treasury equal to the sum raised by themselves. In fact, they would have twice £1,982 2s. 9d., or £3,964 5s. 6d. per annum so long as the grant was continued. £1,982 would pay 5 per cent. on a working capital of £39,640, with which to equip the educational establishments and carry out the purposes of the Act, and over and above these remains the additional grant of £1,892.



"If we consider the powers of the three counties—Galway, Mayo, and Roscommon—with a view to one educational farm and technical institution, the case stands thus:—

|               | No. of Baronies. | Rateable Valuation. | Penny Rate available for Technical Instruction. |
|---------------|------------------|---------------------|-------------------------------------------------|
| Co. Galway .. | 18 ...           | £475,713 ...        | £1,982 2s. 9d.                                  |
| Co. Mayo ...  | 9 ...            | £311,447 ...        | £1,297 13s. 11d.                                |
| Co. Roscommon | 9 ...            | £295,574 ...        | £1,231 11s. 2d.                                 |
|               |                  |                     | £4,511 7s. 10d.                                 |

This would pay 5 per cent. on a loan of £90,220, and entitle the three counties to receive a grant equal in amount to the sum contributed by them out of the rates. Irrespective of the profits arising from the practical instruction of the poorer classes, as represented by the sales from the farm and workshops—and these, we maintain, should be a very large and important item—the Government grant of £4,511 7s. 10d. is available for educational expenses.

"The difficulty raised about the funds required for my scheme has been solved by this really generous step on the part of the Treasury. I asked £82,000 to purchase the land, construct the buildings, and carry out the full purposes of the scheme (except in so far as it applied to higher class education, where fees would be required). If rented, a capital of £54,000 would be sufficient." And for these sums I proposed to start, equip, and carry on four provincial and educational farms. Here, by the timely and generous aid of Government and a tax of one penny in the pound, far more than the sum required for four establishments to cover Ireland is readily available for one institution to supply the needs of three counties. It is apparent that at one halfpenny in the pound and a corresponding grant the principles of agricultural instruction best suited to our small farmers could be carried out according to my scheme, and a tax so small as this would be unfelt by the ratepayers.

"My great hope is that Boards of Guardians will strenuously avoid small establishments for agricultural instruction. The folly of such has been well demonstrated in Ireland. The expense connected with them is enormous, the difficulty of getting the required number of capable and suitable teachers prohibitive, and the loss incurred in the prosecution of farming, which to be instructive should be profitable, very serious and damaging to the reputation of the places themselves.

"Large counties might have farms of their own, and small ones might combine; but I must say I would rather see four or six large establishments at first than one in each county. As time passed, and the best way of imparting instruction was discovered, it might be advisable to start a larger number; but at the outset I would say, 'avoid numerous establishments.'

"One thing remains to be said. Although the offer of Government aid is now on the statute book, the matter is nevertheless in the hands of Irishmen themselves. If they do not choose to qualify themselves by first of all deciding upon agricultural and technical instruction, and agreeing to levy a tax according to the powers conferred upon them by special Act of Parliament, the liberal offer of State aid will be no good to them.

"There are few board-rooms in Ireland where the prevailing ignorance of practical agriculture is denied. During my travels as an inspector under the Land Act, 1890, there was one opinion common to the several boards with whom I was associated, viz., the absolute necessity for some way of teaching the small farmers how to till the land, grow better crops, keep more stock, and treat them in an improved manner. All were agreed upon the advantages to be derived from seed-growing farms as contrasted with purchases of inferior stuff at famine prices. Now, I take the liberty of telling them, in their own interests, that the time has come when they can give effect to their wishes at a nominal expense to the classes they represent, and with a generous offer of assistance from the coffers of the State.

"It is absolutely impossible for Ireland to endure the weight of foreign competition in agriculture unless some very determined steps be taken to teach her farmers their business. If we are to remain an oat-growing and potato-eating country, we must face the stern fact that there are such things as potato famines and national bankruptcy. If we are to continue breeding wretched cattle and sheep, and starving them through half the year, while by better systems of culture and more constant application of manual labour we could compete, and compete with credit, in any stock market; then, I say, we will be simply inviting and courting the ruin and misery which Providence has in wisdom decreed shall be the lot of those who do not help themselves.

"There is no virtue in any form of Government which may bring prosperity and happiness without self-help, and I am extremely glad to say that, during the many times I have heard the question of agricultural improvement discussed by nationalist gentlemen, I never heard it treated as a matter of political belief or party politics."

#### RECIPE.

A LIGHT BLUE FOR LINEN CLOTH.—For a piece of cloth 72 yards by 30 inches, boil for one hour with 2lbs. 3ozs. soda-ash, rinse, and give a light blue in the cold vat. Sour with 3½lbs. of sulphuric acid, and rinse. For finishing, a mixture of 108 pints with 2lbs. 3ozs. wheat starch, and the clear solution ½oz. of gentiana violet B., and 8½ozs. of alum; pass cloth through this mixture

## Chemicals and Dyes.

(Special Report by MESSRS. SADLER & Co., Ltd., Middlesbrough.)

WITH the cessation of the coal strike, and a regular supply of Durham coal obtainable, the chemical industry in the North of England is resuming its activity; and hopes are entertained of better business now the half year has turned. Alkali is quoted a shade lower. Ammonia products are slightly better—Sulphate of Ammonia being a few shillings per ton advanced on the month's price. Forward business is also looked upon as better, and sellers do not seem at all disposed to contract far ahead. There is no great alteration in the values of Tar products. Pitch keeps pretty steady, but Anthracene is easy. Benzoles have advanced about 3d. per gallon from the bottom price. Aniline Oil and Salt are being quoted at very low prices, however; the former being about 7d., and the latter 6½d. Oxalic Acid is, if anything, firmer, although anything beyond 3d. nett for large orders seems difficult to obtain. Prices.—Dyes—Alizarine, 8½d.; Aniline Oil, 7d.; Aniline Salt, 6½d.; Magentas, 2/- to 3/-; Scarlets, 1/3; Chrysoidine, 2/-; Blues, from 3/-; Picric Acid, 10d. Ammonias.—Liquid Ammonia, 1½d.; Carbonate of Ammonia, 3d.; Muriate of Ammonia, £16 to £22; Sulphate of Ammonia, £9 17s. 6d. to £10. Alkalies.—Bicarbonate of Soda, £7; Caustic Soda (77), £11 15s.; Soda Ash, 1½d.; Caustic Potash, £19; Sulphate of Soda, 28/-; Soda Crystals, about £3. Sundries.—Tartaric Acid, 1/6; Citric Acid, 1/10; Oxalic Acid, 3d.; Tin Salts, 6d.; Sulphate of Copper, £16; Bleaching Powder, £7 15s. to £8; Borax, £28; Nitrate of Soda, £8 12s. 6d.; Carbolic Crystals, 6d.; Epsom Salts, £3.

## Selected List of Applications for Patents relating to Textile Fabrics.

Compiled from the Official Records, by Messrs. W. P. THOMPSON & Co., Patent Agents, of 6, Bank Street, Manchester; 6, Lord Street, Liverpool; and 323, High Holborn, London, W.C.

W. B. WALTERS, London, No. 9,231.—"Improvements in and apparatus for effecting the separation or extraction of grease, oils, gums, or resins from wool, flax, or other materials by means of volatile solvents." 16th May, 1892.

J. LUCAS, Halifax, No. 9,489.—"Improvements in slubbing, intermediate, and roving frames employed in the preparation of fibrous materials for spinning." 19th May, 1892.

G. B. BIANCHI, Liverpool, No. 9,888.—"Improvements in or relating to machines for beetling fabrics." 24th May, 1892.

J. B. G., and J. B. SWALES, London, No. 9,899.—"Improvements in paper tubes for holding yarn or thread." 26th May, 1892.

A. HITCHON, Halifax, No. 10,227.—"Improvements in machinery for grinding and truing the wire points of card flats." 30th May, 1892.

J. LE F. MYERS, London, No. 10,360.—"Improvements in machines for treating vegetable fibres." 31st May, 1892.

C. A. SAHLSTRÖM and E. PARR, London, No. 10,612.—"Improvements in and connected with the cleansing and bleaching of wool, hair, silk, cotton, flax, and other vegetable or animal fibres or fabrics; the recovery of by-products, such as oil and fat, as contained in such fibres or fabrics, and the recovery of the whole or part of the ingredients used in the process." 3rd June, 1892.

H. H. LAKE, London (communicated by M. Chapon, France), No. 10,708.—"Improvements in and relating to spinning, doubling, twisting, winding, and similar frames." 4th June, 1892.

F. C. STEPHAN, London, No. 10,872.—"Improvements relating to the measurement of cloth and other fabrics, and to apparatus therefor." 8th June, 1892.

L. C. DAMMAN and J. LAPIN, London, No. 11,020.—"Improvements in apparatus for preventing waste in case of breakage of the threads in spinning machines." 11th June, 1892.

T. SINGTON, Manchester, No. 11,365.—"Improvements in the planning and construction of mills for spinning and doubling cotton, flax, and other fibrous vegetable products." 17th June, 1892.

J. KENNEDY, Halifax, No. 11,366.—"Improved composition or compound to be used in bleaching cotton, linen, or woollen fabrics." 17th June, 1892.

#### PATENTS COMPLETED.

The specifications of the following patents have been printed and published during the month, and copies thereof may now be obtained at the uniform price of 9d., which includes postage.

1891.

L. C. DAMMAN and J. LAPIN, Rouler, Belgium, No. 8,790.—"Improvements applicable to all kinds of spinning machines for preventing waste in case of breakage of the threads." 23rd May.

JOHN BOYD, Shettleton, No. 9,380.—"Improvements in machinery for winding yarn or thread." 3rd June.

DAVID BARNETT, Glasgow, No. 10,252.—"Improvements in apparatus for treating textile vegetable substances to obtain fibres therefrom." 17th June.

WILLIAM SCOTT, Jun., Dundee, No. 12,227.—"Improvements in or relating to carding machinery." 18th July.

1892.

SAMUEL JONES, Newtownards, No. 1,744.—"A stop motion for pirn-winding machines." 29th January.

R. D. DON, Dundee, No. 7,457.—"A band for banding hanks of flax, tow, and like yarns." 20th April.

#### LIST OF GERMAN PATENTS.

GERH. STEINGLASS, Erkrath, near Düsseldorf, No. 3,197St.—"Shuttle-catcher for looms." 8th April, 1892.

AUGUST AHNERT, Pohlitz, near Greiz, No. 2,867A.—"Jacquard card-beating machine." 31st July, 1891.

ELSÄSSISCHE MASCHINENBAU-GESELLSCHAFT, MÜLHAUSEN, Elsass, No. 3,363E.—"An Heilmann combing machine." 26th January, 1892.

EMIL LANGJAHR, Paris, No. 7,345L.—"Selvage apparatus for looms." 6th April 1892.