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OF THE  
**Board of Arts and Manufactures**  
FOR UPPER CANADA.

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THE ANNUAL EXHIBITION.

AGRICULTURAL ASSOCIATION, U. C., 1866.

The twenty-first Exhibition of the Agricultural Association of Upper Canada, held in this City, closed its labours at 2 p. m. on Friday, the 28th September; having, as customary, extended over the whole of the week commencing Monday the 24th. From the fact of the Exhibition being held in Toronto, the Capital of Western Canada, with all its large appliances and surroundings, and the head-quarters of the Association, it was confidently anticipated, and with good reason—successful as the Exhibition of 1865 at London confessedly was—that of 1866 at Toronto would certainly be still more successful, in the number as well as character of the entries, and in the attendance of visitors. From the time preparations commenced, and the books were opened, up to the very eve of the Exhibition week, all these anticipations bade fair to be abundantly realized; for never in the history of these great Provincial gatherings, indicative of progress in our material resources, was there a brighter prospect of a most successful result. But as man proposes so Providence disposes; and, quite at the eleventh hour, heavy and continuous rain marred, if it did not defeat, the hopes and expectations which had been indulged in. All Tuesday, was a regular down-pour of soaking rain; and although the weather cleared up on Wednesday, and was brilliantly fine on Thursday and Friday, the Exhibition grounds were so wet and miry as to render locomotion in general unpleasant; and to make a visit to the live stock a labour which none but the zealous few ventured to attempt, or make anything like a thorough inspection of what otherwise would have more than repaid the trouble. It affords us, however, sincere gratification to be able to state that notwithstanding the drawback of much rain the Exhibition of 1866 was, beyond all question, a great success; for although adverse circumstances dimmed some portion of its *beauty*, the effect of its decided *usefulness* cannot be over-rated.

At a period so soon after the close of the Exhibition and when the bustle attending the winding up

of its business matters has not subsided, it would be impracticable to give any reliable statistics, either as to the number of entries in the several classes or the number of persons who visited the grounds. All this information will be duly prepared for and officially published in a subsequent number of the Journal; and it must therefore suffice, on the present occasion for us to state in general terms, that the entries as a whole were fully up to expectations; and, despite the weather, the attendance large, while particularly on Thursday the crowd was enormous. It was hoped that the members of the Provincial Government would have encouraged the Exhibition by their presence, but executive duties kept them away, except the Honorable D'Arcy McGee, who, as "Minister of Agriculture," appropriately inaugurated the formal opening of the Exhibition in an eloquent address delivered in the open air to an immense crowd of attentive listeners. With this exception, the Association had to depend on its own intrinsic merits for the accomplishment of the success which it has so deservedly merited and obtained, and which cannot fail to produce lasting benefits on the country at large.

Before reviewing the articles exhibited, it will be no more than right to notice the many and great improvements which at a heavy outlay have been made for the comfort and protection of the live stock; and the accommodation of Manufactures, Horticultural products, the Fine Arts, Ladies' work, and other like articles of a perishable or easily-injured character. Large additions have been made to the sheds and pens for cattle, sheep, and pigs, while a new and separate gallery for pictures, with a separate hall for fruits and flowers, have been erected, thus adding wonderfully to the opportunities afforded for the proper display, and the comfortable inspection of the articles exhibited; and by this means the whole of the interior of the Crystal Palace proper, renovated and fresh painted, was thereby devoted exclusively to Manufactures and other handicraft articles. The Association, through the local committee, and liberality of the Corporation of this city in granting the funds necessary, had evidently done its best to meet the call upon its exertions; and although the rain and mud made one wish that the grounds were better drained, and that plank-walks had been more liberally supplied, yet the Association can hardly be blamed for not providing against the contingences of weather.

Taking the Departments in the reverse order in which they appear in the prize list, we proceed first to consider the section of "Arts and Manufactures," which more especially comes with-

in the scope of this Journal. It is true, farm implements and tools belong strictly to agriculture, but it seems preferable to treat them as manufactures, and we shall do so accordingly. And commencing with the ornamental, the Fine Arts (class 39), first demands attention. In this there are 76 different sections besides extra entries; and the works of art exhibited were altogether 350 in number, namely, professional list 130, amateur list 140, photographs 44, and extras 35. The striking improvement made in the gallery, which is now a separate building, lighted from the roof so that the whole of the four walls can be used for "hanging," as well as a spacious counter in the centre of the room with a raised story of shelves for miscellanies and extras, contributed to render the Fine Arts exhibition unusually brilliant this year. But notwithstanding these great advantages, every inch of available space was fully occupied; and so great was the crowd, as everybody either going to or coming from the "Fruits and Flowers" took a turn at the pictures, that progression was difficult, and getting a "good look" a matter hardly possible. In fact not only the Gallery of Art, but the Floral Hall, proved to be nothing like large enough for the purpose; and had the space allotted to the public been as large again it would have supplied no more than comfortable room for the spectators. But let us not grumble—but on the contrary be thankful that with past experiences, such good accommodation was provided. Admitting, as we must, that many things found their way into the Fine Arts which had better have remained at home, and that judicious "weeding" would no doubt have made the pictures not alone more refreshing to the connoisseur, but, what is of greater consequence, *more instructive to the student*; yet, as the object of these Exhibitions is to encourage progress, we are not disposed to criticise productions which were exhibited, not so much to advance Art, as to gratify the *individual* rather than the *public*.

But at the same time it must be also admitted that an encouraging stride has been made in Art, not only within the last few years, but even since the Exhibition of 1865; and the display of paintings in oil and water colours, by amateurs as well as professionals, was highly creditable to the talent and industry of the artists. To enter upon an extended notice of even all the best things on the walls, would be out of the question; but we cannot deny ourselves the satisfaction of noticing and heartily commending the oil portrait, and marine painting (Beard's wharf and elevator, Toronto harbor), by Mr. John Forbes, of this city, a young artist whose promising abilities require only to be

cultivated in a good school, to render his future as great a credit to Canadian art as Paul Kane has been. Mr. Robert Whale's oil painting of a racoon was artistic and life-like; Mr. Cresswell, of Harpurhay, merits praise for his landscapes in oil; and Mr. Martin's representations in oil of "still life," were truthful and ably handled. Mr. Fowler, of Amherst Island, far excelled all others in water colours, of which he exhibited a large and varied assortment. It is no flattery to say that the productions of his graceful and free pencil were the crowning ornaments of the gallery, and would have been in themselves a pleasing exhibition; and if we do not select those which more than others merit special commendation, it is simply because so many deserve it that we hesitate to make the comparison, although we incline to most admire his illustrations of "still life," and the landscapes sketched in foreign lands. In pencil drawing, as well as in water colours, Mr. Gilbert won a high place: the large oak tree was a masterly production, and the "crested grebes," a beautiful specimen of effective colour. Mr. Baigeant, Capt. Caddy and Mr. Martin, exhibited several pretty bits of drawing, the sepia landscape by Captain Caddy, being particularly good; and Mrs. Fitzgibbon, constrained to rank as a professional, kept up her former reputation as an amateur, and there was nothing exhibited more truthful or better painted than her water-colour illustrations from nature of the wild flowers of Canada. The amateur list does not call for much remark; for while not a few of the drawings merit commendation as an encouragement to further efforts in art, yet of many more the less said the better; and if the ladies who contributed would attempt something original, instead of making so many copies, amateur drawing would be greatly improved. The photographs were of the usual style; but the portraits finished in oil were highly commended by the judges—Mr. Verner, Toronto, carrying off the highest distinction; and another, very carefully finished by a lady artist (Mrs. McCarthy), was recommended for an extra prize; while amongst those finished in water colours, the portrait of a lady wearing a black lace mantilla, also by Mr. Verner, was much admired, and received not only a first prize, but special commendation. Among the "extras" might be seen many beautiful things, which it seems a pity could not have found place among the "regulars;" for instance, a porcelain portrait by Mr. Inglis; pen-and-ink etchings, by Miss Gourlay, of Hamilton, who exhibited some other clever productions; pen-and-ink etchings, by Mr. J. T. Rolph, Toronto, and by Miss Bowen, of Barton, were all clever and artistic. Mrs.

Fitzgibbon exhibited, as quite a novelty in flower-painting, a water-coloured group of the blossoms of our every-day vegetables, very true to nature. Miss McTavish's drawing of birds from nature, in a mixed style crayons, was very well executed. All these "extras," with possibly some others, were recommended for a special prize. The Picture exhibition of 1866 was an undoubted success; and if a sense of duty to art requires us to say anything calculated to reflect on that success, it is to hope as well as suggest that more attention be paid to *original* subjects; and that *professional* artists be no longer awarded a prize for *copies* in oil or water colours, unless made from *original paintings* by artists of reputation.

The sister class, of Decorative and Useful Art, does not call for more than the passing remark, that most of the articles exhibited possessed more or less merit; but as the collection did not contain any new creation in this connection, the class may be dismissed without more than general commendation—unless, indeed, the stained glass, by Messrs. McCausland and Lyon, both of Toronto, calls for particular notice.

But how to dispose of the Ladies' department, which comprises thirty-seven kinds of needle work, besides extras, and contained some three hundred different articles, so as to give satisfaction, puzzles us more than enough; and how the fair judges managed to pick out what was best among so many, puzzles us still more. There was no end of embroidery in muslin, in worsted, and in silk; artificial flowers in silver and in feather work; guipure work, so mysterious to us male animals; hair work, bead work, cone work, braiding, tatting and crochet work. Then there was ornamental needle work, to which three prizes had been allotted; while "plain sewing by hand" found its place of refuge among the "extras;"—knitting; lace work; moss pictures; wax flowers and fruit; worsted work, fancy for framing, and raised; shell work; wreaths in flower and seeds; and many other specimens of those charming productions of the needle, which female taste and skill delight in, but which provoke so much wonder among old bachelors. Among the articles more strictly useful might be seen quilts, very handsome and good, in silk and patchwork; stockings, socks and mittens, hand-knitted; gentlemen's shirts; and that useful though much neglected article, Canadian plait, for bonnets or hats. Let us devote a word or two to the subject of straw plait of home production, and ask how it is that in a grain country, such as Canada, where the wheat and rye straw are of the finest quality, clean and strong, we *import* from abroad what we ought to *produce* at home? Bon-

nets and hats can be as well made up here as anywhere else; but *home manufactures* halt, and the benefits are not half realized unless the *raw material* be also of *home production*! But to return to the ladies' work. It will be found that under the head of "extras," not less than seventy-six entries were made, comprising fancy quilts, gauntlets and socks; fancy leather work; rag carpets and mats; seaweed work; slipper patterns; anti-macassars, screens, perforated card work, and other kinds of work known only to needlewomen; and, what we rejoiced to find, "plain sewing by hand," as well as some good specimens of bonnets and hats, made from Canadian straw plait. Amidst all this variety, how can one mortal man decide? Except that our fancy was captivated by Mrs. Crown's comfortable rag carpet, we must leave to the Prize List the duty of setting forth a true and particular account of the honours carried off by the successful competitors; and we accordingly close our remarks by recording our great admiration of the ladies' beautiful work, as well as the ladies' charming appearance.

Turning from the merely ornamental to the practically useful, we shall first notice the Agricultural Implements and Tools, of which there was an extensive and capital assortment; but as they were exhibited out of doors, not very orderly arranged, and were not subjected to any practical trials then and there, the merits claimed for many of them depended a good deal on the maker's own assurances. Messrs. Dickey, Neil & Co. exhibited a sixteen-horse power steam engine, for agricultural purposes; but we were not fortunate enough to see it in operation, so as to judge of its working merits. There were a few well made, but rather gaudily painted, team and market waggons. Keeping pace with our progress in agriculture, the ploughs of all varieties were well made, serviceable articles. It may be that the wood-plough is best adapted to a large portion of the farmers of Canada; but where the ground permits the use of an iron plough (and those shown were a credit to our craftsmen) it must always be preferred—for quickness of work and neatness of furrow, nothing can touch it; and those shown by Alex. Duncan, Markham; John Gray, Egmondville; and Hugh Milloy, Erin, were all well proportioned, highly finished implements, and richly merited the prizes awarded to them. The other kinds were also very good, but must be passed over for want of space. Companions of the plough, the harrows, came next in order, of which several very good iron ones were shown, those made by Peter Mallaby, West York, whose handiwork showed to advantage in ploughs also, and by H. Collard, Gananoque, were

among the very best on the ground. The grain and turnip drills, made by Maxwell & Whitelaw, of Guelph, and T. & W. Walker, Brampton, were well made, useful articles, that took first prizes. Taking into consideration how rapidly every kind of weed thrives and propagates, if not timely checked, until at last the fields are so foul with these noisome intruders, that it is often difficult to send a clean sample of barley or oats to the foreign market, where freedom from refuse is strictly insisted on, it is no wonder that cultivators are now to be seen, of good manufacture and of studied qualifications for the purposes in view. During the late harvest it was really lamentable to notice the quantity of thistles and other like abominations so plentifully intermingled with the grain. We have seen fields of barley and oats so overrun with these strong grown weeds, as to lead one to enquire whether the crop proper was really worth harvesting; and when it is known—and it cannot be too widely known either—that a single thistle permitted to go to seed will propagate hundreds, nay, thousands of others, nothing but an implement such as a well appointed cultivator can keep the pests down, and by constant use extirpate them from the soil. For want of opportunities, we are not sure whether we commend the right man, but the handsome yet substantial cultivator (of iron) exhibited by Isaac Westcott, of Bowmanville, appeared to be as serviceable as it was handsome. The advantages to be derived from the soil being thoroughly pulverized before seeding, and the use of the roller afterwards, to bring the earth and seed into close contact, so as to ensure due germination, are not as well understood, perhaps, as they deserve. In Flanders, where *field* culture is carried on with as much care and pains as we apply to our *gardens*, this element of skilled cultivation is in constant use. As our farms become more and more cleared of stumps, and capital is employed in agricultural operations, the Flemish system must prevail, and we were therefore pleased to notice a horse-power clod-crusher, and a farm roller, among the implements. It would waste words to argue now-a-days in favor of under-draining; but it is not every Canadian farm that it can be applied to, nor is it every farmer, or even market gardener, who can afford it. But deep ditching, as the next best means of carrying off stagnant water, which, while it chills the crop, at the same time affects the health, is, however, within the reach of a large majority of our farmers. To make good ditches by hand labour would no doubt be a tedious and costly affair, and a labour-saving machine for ditching purposes naturally attracted a good deal of attention. Its qualities were tried

on the spot; and had oxen, whose pull is more steady, been used instead of horses, the result would have been more complete, although the work actually done was satisfactory enough. Of fanning mills there was abundance; also cider mills and press; post-hole borers; machines for making drain-tiles and bricks; straw cutters, of very superior make and arrangement—those shown by Maxwell & Whitelaw, of Paris, being among the best. Of threshers and separators, reapers and mowers, and combined reapers and mowers, the assortment shown was particularly good. Mr. Potter, of Elora, obtained the first prize, of \$10 and a diploma, for the best combined mower and reaper, which was certainly a good implement; but, without at all wishing to depreciate its merits, the one exhibited from the Joseph Hall Works, Oshawa, and which arrived at the ground too late to enter, appeared to us to be the better article. If a steam-plough or cultivator was “in operation on the ground,” it did not come under our observation, and we have therefore nothing to say about it; and the same remark applies to the liquid manure drill, which, as a highly useful aid to root cultivation, we regret not to have seen, as it would have given us pleasure to commend so serviceable an article. It is more than likely that we may have overlooked other articles which merited notice; but if so, the weather, and the want of system in the arrangement, must be our excuse. It might tend to simplify the question if agricultural *tools* formed an integral part of class 32, and were classed with implements; as such articles as fanning mills, straw cutters (which have been already noticed), cheese and cider presses, and so forth, though worked by hand, partake more of the character of machinery than of manual labour. Of the *tools proper* the display was, it is true, limited in quantity, but what there was could hardly be excelled anywhere. The collection of scythes, manure and hay forks, hoes, and similar articles of polished steel, handled with second-growth ash (from A. S. Whiting & Co.’s factory, Oshawa), would have commanded admiration at any industrial exhibition in the world; and it was a matter of regret that the assortment had not claimed more show room, so as to have been seen to greater advantage. The axes and axe-handles were good enough, but why was there not more competition in these useful articles? The horse-shoes were much admired for shape and finish, and though, on the ground perhaps of utility, the sets for farm and carriage horses took the prizes, nevertheless a set of polished racing-plates did credit to the handiwork of Joel Wootton. Among the labour-saving machines or implements worked by hand, one for the more easy and quick

harvesting of peas, and another for sawing wood (the exhibitor assured the lookers-on it would cut a full cord in an hour), deserve to be commended. Mr. Nightingale, of Yorkville, was at the head of the competitors in drain-tiles; and for a machine for making such tiles, exhibited by Mr. W. Lindsay, Newcastle (and of which wonderful things as to the many hundred tiles it could turn out per day were told), the handsome prize of \$20 with diploma was awarded—second honors, to the extent of \$10, falling to Mr. E. Rockie, of Malahide. And as the honey bee begins to find a welcome home in many a farm garden (a considerable number of hives, full of live bees actually making honey, were on view), and as all sorts of domestic productions merit praise as a step in the right direction, we have pleasure in recording that three prizes offered for hives were awarded in the order of merit to Messrs. Thompson, Brooklin, G. H. Thomas, Toronto, and A. D. Bacon, Malahide.

With regard to Manufactures proper, let us commence at cabinet ware, with other works in wood; and we are constrained to regret that in this class (35) the display should have been so meagre, and so unworthy of Toronto; inasmuch as in the first seven sections, which embrace all the principal articles of house furniture, there was but one solitary article, and that came from Hamilton! It may be pleaded in apology for such distant cities as London and Kingston, as well as the intermediate large towns, that besides the great expense of sending first-class furniture long distances to exhibit for trifling money prizes, the damage done to the articles is a serious consideration. This latter argument has weight, and perhaps the small inducements held out may also be fairly taken into account, as regards cabinet work made beyond a moderate distance from the place of exhibition. But public opinion will not be satisfied with such an excuse (and we have heard no other suggested) from Toronto, the head-quarters of the exhibition. In addition to the extensive factory of Jacques & Hays, which enjoys a provincial reputation, and of which Toronto, and indeed Canada, may well be proud, we have several other cabinetmakers of high repute; but there was not public spirit enough among them to induce the exhibition of so much as one specimen in the shape of drawing-room, dining-room, bed-room or any other kind of furniture, of Toronto workmanship!—so that the crowds who visited the show could find only a centre table (from Hamilton) and three specimens of inlaid work of Canadian woods (the only prize for which was claimed by Cobourg) to represent the whole of our provincial cabinet-making, and for which sixteen prizes were offered, of a total money

value of \$115! A like shortcoming was also observable in the ordinary kinds of manufactures in wood. In three sections no entries were made at all, while in other eight sections only thirteen entries were made altogether!—so that in eleven various kinds of woodwork, for which money prizes over \$100 were offered, only thirteen competitors (one being from Toronto) were induced to contribute, to our Provincial exhibition of skilled industry, specimens of such every-day character as cooper's work, joiner's work, and wood-turning. Commendation of the articles exhibited, few and far between, would be out of place, and of little if any service. But it should be ever borne in mind that articles are not sent to exhibitions merely for the sake of money prizes. This might possibly have been the case, to some extent, twenty years ago, when industrial skill required to be more cultivated and encouraged than in the present day; but at the present time exhibition articles are, or ought to be, considered either in the light of proofs of the rapid progress we have made or are making in mechanical skill and applied science, or as examples of successes achieved in this direction, and a stimulus for others to imitate and, on progressive principles, to improve on. We do not wish to be harsh or inconsiderate towards our citizen cabinet-makers; but, knowing what excellent work could, with so little trouble, be exhibited, and seeing that nothing has been shown, we are really forced into this expression of regret and disappointment at so marked an omission of Toronto skill at a Toronto exhibition! The "extra" entries were, however, numerous, extending to thirty-three articles of the most varied description; and though—with the exception of a handsome billiard table (to which an extra prize of \$10 and diploma was awarded), manufactured by Riley & May, of Toronto, and which is quite a new branch of industry among us; an extension table (Miall & Co., Oshawa), which received an extra prize (\$5) and a diploma; and a collection of fifty-two specimens of "wave mouldings," of excellent workmanship, from the factory of Heise & Co., Preston, but to which, as having been exhibited before, a prize was not awarded—the other articles were of the usual class, most of them, however, displaying a good deal of skill and ingenuity. But we must not overlook a case of cricket-bats and wickets, to which a special prize and diploma was awarded, exhibited by Mr. W. Peacock, Montreal, of Canadian material and workmanship, that, for quality, shape and finish, might have been turned out by Dark (Lord's) or Page (Kennington), and which, as deserving of encouragement, we heartily commend to the patronage of every Canadian cricketer.

In the carriages, however, Toronto showed to great advantage, the firm of Hall & Co. carrying off three first and two second prizes, and the style of their work was greatly admired; Mr. J. B. Armstrong of Guelph, took two first and one second prize for carriages; he had the sleigh distinctions all to himself, and though his colouring was rather too gaudy, the workmanship was neat and the material good. Why we cannot tell, but it is a fact that Hall & Co. were not placed for carriage wheels *unpainted*, the first prize going to Scarborough and the second to Galt. Mr. Gould of Milton, exhibited a light buggy, handsome and good, fitted with Taylor's springs, which for strength, combined with lightness and "easy riding," is claimed to be the greatest invention of the day—it certainly appears to be a superior article, and if it only acts half as well as it looks, it ought to become extensively patronized—and yet with this set of improved and highly finished carriage springs on view, the Judges awarded no prize at all in the regular list, although there were two entries; and we regret that the merits of the Taylor patent had not been acknowledged by an extra prize, even if it was attached to a vehicle, instead of being exhibited separately. Moore & Childs, Buffalo, took the only prize awarded for wrought-iron axles, and an extra prize with diploma for a wrought-iron car axle, both fine samples of capital work; and though not exactly in its order, it will not be out of place to record here, that the same manufacturers carried off the only prize awarded (class 43, section 8) for ornamental iron-work from the hammer; so that our own workers in iron will have to bestir themselves and show next year at Kingston, that a Canadian hammer is not to be beaten by any other. The show of carriage and sleigh materials was large and particularly good, and prizes in the regular list were awarded for bent shafts, carriage tops, hubs, rims, and spokes; while the "extra" list was crowded with entries of a similar character, all of the choicest material tough and clear in the grain and of the best workmanship. McKinley & Saunders, St. Catharines, received the highest extra prize for the best and largest assortment of carriage and sleigh manufactured material, and Messrs. McMillen, & Co., Galt, took the second; but really, except as regards the element of quantity, both assortments were so creditable and so nearly alike in quality and workmanship, that we should have been glad to see them classed together as equally deserving a first prize. So far then as the carriage department is concerned the exhibition was creditable and satisfactory and stands far ahead of the cabinet ware.

Class 42, which includes Machinery, Castings, and Tools, and comprised not less than 26 sections with two prizes for each different kind of article, had scarcely an average of one entry to each section, *eg.*, for hand power looms, assortment of edge tools, steam engines four-horse-power in operation, assortment of saws, sugar and coffee mills, platform and counter scales, valves and gearing for steam engines, altogether ten sections, there was not a single entry! For blacksmith's bellows, castings for general machinery, castings for railways and locomotives, metal pumps, refrigerators, sash and moulding machines, shingle-splitting machines, skates, and tools for working in metals, there was only one entry in each of the ten sections! While of cordwood sawing machines, horse power and hand power, (the latter already noticed), there were two of each; stationary steam engines, planing and drilling machines for metal also two each; for turning lathes actually three competitors appeared; while the "extras" presented the encouraging total of eighty-three entries which formed in fact the exhibition proper under class 42. Beyond the expression of our regret that the regular list of twenty-six sections obtained so meagre an entry; our wonder at the copious patronage given to extras; and our approval of the turning lathes to which first prizes were awarded to McKecknie & Bertram, Dundas, and Mr. Jno. Fensom, Toronto, as of equal merit, we have little to say, and leave the prize list to give any further information. But the "extras" merit a particular notice, and although the task of doing anything like justice to over eighty different articles of machinery is more than arduous, we are bound to single out the more prominent and deserving ones for commendation. But before commencing to do so, we should like to have explained how it is that twenty-six *regular* sections in machinery, cannot accommodate the competition, which this year has had to find its proper place, to the extent of eighty-three different articles, as *extra* entries! At London, in 1865, the Great Western Works sent an excellent and very fine assortment of locomotive and other railway machinery which formed a conspicuous ornament of the Exhibition, but nothing of the kind was vouchsafed to Toronto, and thus our hall of manufactures lost not a little in effect; but notwithstanding this manifest disadvantage, the display of machinery in 1866 as "extras" was highly creditable for its workmanship, and very interesting for the ingenuity and skill brought to bear upon the subjects. Mr. Eyre Theursson, Ancaster, received a prize and diploma for three carding machines (American and English styles) of a superior kind;

Morris & Miller, Perth, prize and diploma for a double reverse Compton loom; Mr. Baines, Toronto, prize and diploma for improved manufactured railroad iron-work; Moore & Childs, favourably commended elsewhere for other articles, a prize and diploma for a set of oil boring tools. Of sewing machines there were more than enough, and during the whole time the gallery was crowded with ladies who discussed with much emphasis the merits of this or the other according to their respective fancies; but when ladies differ how can we men decide; so we shall get out of the difficulty by advising "intending purchasers" to please themselves. We noticed a pretty machine for making button-holes, regretting that it did not at the same time sew on the buttons as well; and what took our fancy as one of the most ingenious and useful things on exhibition was a family knitting machine, which can produce all kind of articles from a baby's glove, to a lady's shawl; and the obliging young lady who "worked" it, actually ran off a well made sock, while she explained to us its mode of operation; the machine is made at Rochester, sold by Taylor & Middleton, (92 Yonge Street), it is well worth seeing, and richly deserved the prize and diploma awarded to it. Mr. Beebe, Markham, got a prize for an ingenious pump augur; Mr. Noah Piper, prize and diploma for three well-made serviceable ventilators and smoke conductors; Mr. Lazier, Belleville, got a prize for what seemed, in our judgment, a well-arranged and labour-saving double reeler and twister, with twelve spindles capable of spinning from thirty to forty knots per hour. Mr. R. D. Chatterton, Cobourg, so well known for his mechanical ingenuity and skill, received a prize for the model of a self-acting couple, as well as for an anticollision buffer for railway carriages, both inventions being intended to diminish, if not altogether prevent, the injuries attendant upon railway casualties. And although the machinery comprised, no doubt, many more articles deserving praise, still we cannot notice everything shown under this head; and we have no option but to close our remarks by highly commending the "extra" kinds of machinery which we consider to have been most creditable to the occasion, as well as to the parties exhibiting.

If in class 43, which includes metal work and stoves, the regular entries were not so numerous as they might be, yet the assortment of articles was very extensive, particularly in stoves, of which not less than 80 different patterns were exhibited, and 10 patterns of grates; while the style and quality of the work was of the first order. For example, the very large and beautiful assortment of copper-

smith's work shown by Booth & Co., which took the first prize, would have been a credit to any industrial exhibition in the old country, and great credit is also due to J. G. Beard & Sons, to whom the second prize was awarded. The assortments of engineers' work in brass, by Morrison & Ellis (first prize), Mr. John Ritchie (second prize), and Mr. George Harding, were in like manner highly creditable specimens of mechanical skill. The assortment of fire-arms, chiefly for sporting use, exhibited by Grainger & Son, was very handsome; and it was easy to see with half an eye that the laminated steel double barrel fowling piece only wanted to be held straight to ensure bagging the bird. To those who are compelled to resort to safes those of Taylor & Co., Toronto, and Kershaw & Edwards, were fine articles, and the former almost large enough for a bank; but as we have the misfortune to be unbelievers in burglar-proof and fire-proof safes, we must leave the merits of the question in other hands to determine. The gas-fixtures shewn by Mr. D. S. Keith were of the first quality, and met with corresponding reward, as did the plumbers' work shown by Messrs. Ritchie and G. Harding respectively. Opinions, and may be fancies, differ so widely as to the merits of cooking and other stoves, that, beyond admiring and praising nearly all that was exhibited, we must allow the judges' awards, as detailed in the Prize List, to settle all conflicting opinions,—the "iron tears that ran down Pluto's cheeks" would be the emblem of the troubled waters sure to be got into were we to pretend to decide between Toronto and Hamilton, or the adverse claims of a Beard, a McGee, or an Armstrong! The "extras" in this class are also pretty numerous, but as honours were awarded to everything that was worthy of notice, the prize list will of itself afford pretty much all the information that is necessary. In connection however with the stove question, it is a matter of regret that there was no entry for the prize for a "parlour grate, set so as to ventilate the room and economize fuel," a combination of advantages which calls for all the thoughtful ingenuity which can be brought to bear upon so important an element in domestic economy; and we venture to doubt whether "economy in fuel" was sufficiently taken into account in connection with cooking and hall stoves, and specially those intended for wood; as the fire chamber of some that we peeped into did not promise very well for wood at six dollars a cord! Messrs. Joseph & Co., exhibited a splendid display of gold and silver work, jewellery, watches, and other valuable and beautiful articles of great taste and ornament. Messrs. T. Russell & Sons, England, exhibited a magnificent

assortment of the very finest gold and silver watches, their own manufacture. And Messrs. T. Haworth & Co., agents, Toronto, showed a beautiful assortment of silver plated ware and cutlery, manufactured by Griffiths & Co., Sheffield. As a whole the exhibition of articles in metal work, like those in machinery, was a decided success, and the two classes were great ornaments to Provincial skill and industry.

Woollen, flax and cotton goods, now call for attention; and, viewed in a practical light, there can be no branch of home industry which we rejoice to notice as spreading itself wider and wider over the land, that attracted more attention, and so richly merits all possible commendation, than the home-made materials for clothing purposes so abundantly exhibited at the recent exhibition. The encouragement afforded to this class of home production stimulates many branches of industry. The farmer, instead of turning all his attention to grain for exportation, gives a portion of his land to flax and feeds large flocks of sheep for their wool; which finds a regular and remunerative market, while to do this he has to pay due attention to root crops as "feed," so thus his farm goes on improving in cultivation. The flax and wool thus produced give inducements to invest capital in factories and machinery, which employ hundreds of hands, who, in their turn, by the demand for food, cause a greater breadth of land to be put in crop; and by these means the country prospers, the farmer and the manufacturer aiding and enriching one another by a mutual reaction of interests. As the raw material will be noticed under agricultural productions, we proceed to comment upon the manufactured article, and as our space is limited we must perforce confine our remarks to the more prominent subjects, leaving the prize list to supply the others. The woollen blankets exhibited by Slingsby & Kitchen, Canning, S. Oxford, and to which the first prize and diploma were awarded, could not be surpassed, and would have done honour to an English loom,—not less than six competitors entered and the whole assortment merits great commendation. In the article of Canadian cloth (woollens), Messrs. Barber Bros., Streetsville, carried all before them, first prizes being awarded to their cassimere cloth from Merino wool, their fulled cloth, broad-cloth, Oxford-grey cloth, black and mixed satinets, summer and winter tweeds, and, as a crowning triumph, a general assortment of cloths, tweeds, &c.; in fact everything they showed was of the best material, well manufactured, and richly deserved the prizes adjudged to it. In linen, for the best six varieties

of cloth not less than 12 yards, manufactured in Canada from Canadian grown flax, the first prize of \$60 went to Elliott, Hunt & Co., Preston; the second, nearly as good in quality, to Mr. John Rea, Yarmouth; and we look forward to this highly useful branch of industry making every year still greater strides in its onward progress. In factory made woollen articles of underclothing Messrs. Armstrong & Anderson, Guelph, took all the prizes for men's drawers, angola under-shirts, socks and stockings, woollen and mixed; their assortment of woollen shawls, &c., also took a first prize, and their ladies vests and drawers received a diploma as "extras." Miss Bush, Darlington, was the only exhibitor of woollen stair carpet; and though a first prize had been given to Mrs. Watts, Toronto, for a piece of rag carpet, parti-coloured and well made, yet these articles, like the rag carpet exhibited by Mrs. Crown, Yorkville, would have more appropriately been placed as ladies' work; and although private P. Tarry, of the band 17th Regiment is a male sempstress! still his wonderful quilt, which has quite an ornamental and arabesque character, was hung in the ladies gallery, and well did the honest soldier deserve the prize of \$10 awarded to his labour; for when it is remembered that the quilt contained 2,341 pieces of cloth, military colours, red and white, the time, industry and patience devoted to its completion, appears almost beyond belief. For flannel, not factory made, Mr. D. Clark, Puslinch, was awarded the first prize for a very good article; and we observed, without however finding the exhibitor's name, a pair of fine flannel sheets of an especially comfortable appearance. We noticed also some good shawls, home made, and very handsome; sheep-skin mats, dressed and coloured. So that, like the classes for machinery and metal work, the woollen and linen departments were most admirable in quality; and we are glad to learn that the prize blankets are to be sent to the Paris Exhibition as an evidence of what Canada can accomplish in woollen manufactures.

As there is "nothing like leather," it will be most convenient to notice classes 48 and 49 together, seeing that the one belongs to the horse and the other to man, who are natural associates. The various kinds of leather in the harness and saddlery class were nearly all of superior quality, and the dressed deer-skins were also a nice article. Having thus disposed of the raw material, let us turn to the manufactured article—and here, in the matter of collars, carriage and team harness, the old rivalry between Nicholls and Malcom rages fierce as of yore, now one and then the other taking a first prize. As among the stoves so shall we keep clear of collars, and whether a



Nicholls or a Malcom be the better maker, let others settle the point; all that we have to say is that they both exhibited first-class work, and deserve to go on competing for honours years to come, although it is somewhat significant that Malcom should have been second to Courtice (Reach) who carried away the first prize for a set of double carriage harness! As regards saddles, Mr. E. Bach, Toronto, was the most successful competitor, carrying off the first prize in three instances, and running a dead heat with Mr. E. Kraft, Hamilton, for another; while Mr. W. Steward, of Toronto, came in second, and an extra prize was adjudged to Mr. E. Kraft, Hamilton, the prize articles being all of superior material and make. The exhibition of whips and thongs, was monopolized by Mr. Malcom, to whom also extra prizes were awarded for cart harness and a sample case; and other prizes went to Mr. Steward, for stud horse gear and military equipments. Machine belting brought only two entries, Harvey & Co., St. Davids, being first, Mr. W. Marks, Toronto, second; and Messrs. Malcom and Clarke divided the prizes for trunks and valises. In shoe leather, plain calf had seven entries, grained calf six, morocco calf three, cordovan three, dressed dog-skins (which we are glad to see coming into use) four, kips and grained kips eleven, and linings half-a-dozen,—sole leather, upper leather, plain and grained, brought together twelve competitors, while in "extras" a variety of fancy goods were shown. Without pretending to judge for ourselves, whether the shoe leather was a better article than the saddle and harness leather, but leaving that point to wiser folk, the prize-list must for the present settle the order of merit among the exhibitors. Of a well-made shoe or boot we do know something, and those made and shown by Mr. G. Martin, rather too fine perhaps, were very superior articles, and merited the two first prizes awarded to them. The other exhibitors were Mr. Sutherland, Kingston, who took two prizes, and Mr. Jacobi, Toronto, who got one—so that, as in cabinet work, our city "crispins" have not come out in the manner which might have been looked for. Toronto is the chief city of Canada West, and is to be the seat of government when confederation becomes a fact—it has a population of say 50,000, it is the head-quarters of the law courts and the universities, it enjoys the benefits of a garrison, and a numerous resident gentry. How many boot and shoemakers such a population gives custom to we do not know, but believe to be a large number, among whom are many first-class workmen, well known artists in their line; and yet on their own vantage ground, Toronto supplies two, and the

rest of Canada one, to compete at the Provincial exhibition, for honours as first-class shoemakers!

In the arts of printing the whole of a very small field is covered, with one exception, by Toronto productions issued from the four establishments of Hon. Geo. Brown, Chewett & Co., Dredge & Co., and Rollo & Adam, while Mr. John Lovell, of Montreal, only exhibits successfully in posters, plain and coloured, but unsuccessfully in letter-press. The only paper, Canada-made, comes from Buntin Bros., Toronto. Of room paper there is none; only one assortment of pocket-books, &c.; and of the "extra" entries the single thing pretending to book-printing is (Montreal) Lovell's series of school books, while the only article of an original character is an assortment of school slates, said to have been manufactured in Dunville, Canada East; Mr. H. White, Toronto, Agent. As the abode of law, as a University and collegiate city, with a Normal and Model school, Grammar school, numerous common, and no end of private schools, class 47 presents but a meagre appearance as regards the material appliances of knowledge.

The musical instruments were chiefly a church organ, built by Mr. T. F. Roome, Toronto, to which a special prize was deservedly awarded; square pianos, of which nine were entered; six melodeons and four harmoniums; the extras being five, of which the elliptical piano, by Mr. Joseph Rainer, Whitby, was the principal feature. All the instruments were handsomely finished, but as regards their comparative merits the judges' award, as set forth in the prize-list, must determine the question.

In class 46, Natural History, the honours for stuffed birds were absorbed by Mr. Passmore and his daughters, who carried off all the prizes except in birds and animals of any country, for which Mr. Robert Bishop took second prize. All of these were nicely stuffed, and artistic in attitude; but without any wish to disparage their merits, we know of a private collection, by a Hamilton amateur, that in our judgment would have carried off the honours, had it been exhibited. We missed the collection of native insects which heretofore have graced our Exhibitions, and it is to be regretted that some other naturalist has not taken to moths, butterflies, and "such small deer." The single specimen of mammalia and reptiles, and the two of fishes, all came from the Passmore collection; while Miss Kate Smart, Yorkville, exhibited an interesting collection of native plants, beautifully arranged in natural families, and properly named. Under the head of "extras," a collection of fossils; a case of winter birds, and of humming birds; a collection of Canadian fossils and shells,

with another of various antiquities from distant countries, and an aquarium complete, were exhibited. A collection of Canadian woods had been entered in this class, but afterwards transferred to class 35 (cabinet ware,) and thus was overlooked, which is to be regretted, as a really good specimen of our native woods always claims a distinguished place in a Provincial Exhibition. Let us be thankful that there was at all events some Natural History exhibited, though no great meed of praise can be given to it as a whole. It certainly was not a superior collection; more variety was wanted, to make it interesting; and many of the subjects were in the "sere and yellow leaf," and had lost their bloom and freshness.

In class 44, which was devoted to miscellaneous subjects, *i. e.*, "extras in general," by far the most prominent of the articles exhibited was an assortment of brushes of every kind, from the Toronto factory of Mr. Charles Boeckh, and which, as regards material and workmanship, were of the very best description. It would, we think, be difficult to purchase so good an article anywhere else; and if Mr. Boeckh's establishment is liberally supported (as it deserves to be), Canada will soon become independent of imported articles subject to a heavy import tariff, and supply her own wants by "brushing up" her own home manufactures. The assortment of pottery and stoneware was unusually good, Mr. Campbell, Hamilton, Mr. Eberhardt, Toronto, and Mr. W. Lea, York, exhibiting a large lot of capital articles, neat and even graceful in shape, and sound in quality; and Mr. Warwood, Yorkville, divided the prizes for an assortment of sewerage pipes with Mr. Campbell of Hamilton. The Indian work, chiefly in beads, was pretty and interesting; and the extra entries do not call for particular remark, except the assortment of glassware from the Canada Works, Montreal, and the sample of prepared peat for fuel exhibited by Mr. James Hodges, Arthabaska, where the raw material is said to be inexhaustible; and we are pleased to notice that some of our railroad men are giving the manufactured article a fair trial, so as to test its heat-giving powers.

In another place will be found the Prize List, revised and corrected, for all the classes (*viz.*, 35 to 50) in the departments of Art and Manufactures, and, where practicable, we have supplemented the List with the Judges' remarks. So having thus completed our narrative of this branch of the Exhibition 1866, we propose in the next number of the *Journal* (November) to notice pretty fully the sister department of Live Stock, Agriculture and Horticulture.

## STREET RAILWAYS.

In the year 1861, the Corporation of the City of Toronto granted to a company the right of laying down and establishing railways, and running cars, on three of the principal streets of the city—the citizens generally, at that time, deeming that the railway if established would be a great public accommodation. In some respects these anticipations have been realized, but at the sacrifice of the roadway, to a great extent, for traffic by ordinary vehicles.

The principal difficulties are, 1., that ordinary macadamized streets are not suitable for railways, as, no matter how attentive the Manager may be in keeping the road in repair, the passage of wheels of heavily laden vehicles alongside the rails invariably depresses the material of which the road is made, to such an extent, that in attempting to cross the rails or turn out of the track accidents are continually occurring, by the breaking of wheels or other parts of the vehicles. This may to some extent be overcome by paving for a few inches outside the rails with cut or rubble stone.

Another trouble is, that the constant run of the car horses in the centre roadway keeps that portion worn down much below its proper level, leaving it almost always in a filthy state, and, in many places—after rain or ordinary watering of streets—filled with stagnant water, and with no means of running it off into the side gutters or culverts.

The third objection is, to the cars being drawn by horses at all. It is a kind of work that wears out horses very fast. To watch the poor *more than half-starved* looking animals drawing their loads up some of the heavy grades on these roads, with their tongues protruding from their mouths, apparently exhausted and entirely unable for their work, is enough to make any humane person weep for the poor dumb brutes so cruelly used.

But, says the reader, if we are to have street-railways, how are these difficulties to be overcome? We answer, by substituting steam for horse-power. It would be every way more economical and cleanly in the working of the road, while at the same time obviating the necessity of cruelty to the dumb animals; and increasing the accommodation and efficiency of the road for the conveyance of passengers—especially during the time of stormy weather and on occasions of public exhibitions or holiday amusements.

The charter granted this company does not restrict to the use of either steam or horse-power; we therefore trust that, as Rolling stock will no doubt soon have to be renewed, the managers will secure the most recently improved steam cars for future use. The prejudices heretofore existing against steam

on street-railways, is passing away; and during the last four or five years steam-cars have been introduced on the street railways of several cities in the United States. We could give many extracts from their Journals descriptive of these improved cars, but the following from a Boston paper must suffice, being a description of the latest, and known as

**Woodbury's Patent Steam Car for Streets and Railways.**

This car is 32 feet in length, 7 feet wide, weighs about 7 tons, and will accommodate 50 passengers. It has but one step, similar to the ordinary street horse car; and is very roomy and convenient inside. For durability, comfort, and elegance, it is superior to anything that has ever been introduced on our street railways. Orders have been given for these cars to be used on roads out of town; and we feel confident that a few years only will elapse before the public generally, and those interested in railway matters in particular, will recognise their utility; and that they will take the place of horse cars on all roads throughout the city and country.

Last Wednesday several well-known railway men of this vicinity, and a number from New York, visited East Boston, and made an experimental trip in a car finished recently. One of our reporters accompanied the party, and described the trip as most gratifying to the officers of the company and very satisfactory to the gentlemen who were invited to be present, several of whom expressed much astonishment at the comparatively easy manner in which the inventor (Mr. Joseph P. Woodbury) had overcome what had before been regarded as fatal obstacles to the successful introduction of the so-called "dummy" car on street roads, and at the general completeness of his new steam street car.

The engine is in the front part of the car, the cylinders being vertical, and the machinery resting upon a circular platform so placed upon the truck that it turns any direction given by the wheels, independent of the car body. The rear wheels are similarly attached to a platform, and obey with like readiness the direction given by the rail.

The car was started without difficulty, and stopped as readily as could be wished. Its motion was pleasant and free from those sudden shocks experienced while riding in many of the horse cars. The sharpest curves were passed without any grinding of the rail or wheel flanges; and the circular platforms running upon anti-friction rollers worked with remarkable freedom and ease.

The machinery is entirely hidden from view; and when the car is in motion there is nothing that will frighten the most restive horses. In passing through Chelsea several horses were driven towards the car from cross streets, and none of them exhibited fear or seemed to take any notice of it. The exhaust steam is perfectly silent, not heard outside the car, neither is the steam seen, the inventor doing away with the usual puffing sound of a locomotive, and thus ridding the new steam car of the principal objection raised against its introduction in the streets of cities. The car easily attained a speed of a mile in a minute and a half, the machinery working beautifully, and the motion at the

same time quite gentle. The experiment demonstrated that all objections formerly noticed by railway men have been surmounted, and those who have previously opposed this class of cars in the strongest terms are now the loudest in its praise.

The day before the experimental trip, the power of the engine of Mr. Woodbury's new car was tested in East Boston. Three platform freight cars of the Eastern Railway, loaded with lumber and weighing about 70 tons, were attached to it, and the car moved up the road with its heavy burden without any apparent difficulty or unusual straining of the machinery. The street car can be run 100 miles a day at a cost for fuel, oil, conductor, and engineer, of \$8; performing the work of two horse-cars, sixteen horses, two conductors, two drivers, two hostlers daily, and carrying as many passengers as two horse-cars.

A working model of this car is exhibited daily by the inventor or his agent at the office of the New England Steam Car Company, 35 Tremont street, in this city.

**TWENTY-FIRST ANNUAL EXHIBITION  
OF THE  
AGRICULTURAL ASSOCIATION OF UPPER  
CANADA.**

Official List of Prizes awarded at the City of Toronto, September 24th, 25th, 26th, and 27th, 1866; in the Department of ARTS AND MANUFACTURES.

Competition open to the world.

**CLASS XXXV.—CABINET WARE AND OTHER WOOD  
MANUFACTURES.**

Judges—C. W. Meakins, Hamilton; J. J. Withrow, Toronto; J. W. Drummond, Toronto.

**Cabinet Ware.**

Best Centre Table, W. Bevis, Hamilton, \$8.

Best Inlaid Work of Canadian Woods, F. S. Clench, Cobourg, \$8.

**Miscellaneous.**

Best Coopers' Work, C. Lewis, Salford, \$6.

Best Corn Brooms, 1 doz., Henry McStravick, Hamilton, \$2.

Best Machine-Wrought Moulding and Flooring, G. Gilchrist, Whitevale, Ontario, \$6.

Best Turning in Wood, collection of specimens, W. Craig, Toronto, \$6.

Best Veneers from Canadian Woods, undressed, W. Clements, Newbury, Middlesex, \$8 and Diploma.

Veneers from Canadian Woods, dressed and polished, F. S. Clench, Cobourg, 2nd Prize, \$6.

Best Wash-tubs and Pails, factory-made, three of each, C. Lewis, Salford, \$4.

**Extra Prizes.**

John C. Fox, Kingston, Music Stool, \$2; Geo. Gilchrist, Whitevale, set of School Furniture, \$2; Riley & May, Toronto, a four-pocket Billiard Table, \$10 and Diploma; F. S. Clench, Cobourg, a lady's Maple Work

box, \$2; James Murray, Toronto, Venetian Window blinds, \$2; Stephen Pocock, Woodstock, Inside Venetian Blinds and Screen for hotels, \$2; Wm. Fencock, Montreal, assortment of Cricket Bats, \$3 and Diploma; John Webster, Yorkville, Kinney's patent Weather Leaf, a Diploma; Geo. Nicholson, Toronto, a Swallow House \$10; Miall & Co., Oshawa, an Extension Table, \$5 and Diploma; R. H. Oates, Toronto, Clothes Dryer, \$2; A. O'Dell, Port Hope, Combined Washing and Wringing Machine, \$3 and Diploma; R. R. Royal, Nottawasaga, ladies' Work Box, \$1.

**CLASS XXXVI.—CARRIAGES AND SLEIGHS, AND PARTS THEREOF.**

*Judges*—Amos Arksey, Barrie; William McBride, London.

Best Axle, wrought iron, Moore & Childs, Buffalo, N. Y., \$4.

Best Bent Shafts, half doz., Plummer & Pacey, London, \$3; 2nd do., McKinlay & Saunders, St. Catharines, \$2.

Best Bows for carriage tops, two sets, Jas. McMillan & Co., Galt, \$3; 2nd do., Plummer & Pacey, London, \$2.

Best Buggy, single-seated, J. B. Armstrong, Guelph, \$8; 2nd do., Hall & Co., Toronto, \$5.

Best Buggy, trotting, J. B. Armstrong, Guelph, \$6; 2nd do., Hall & Co., Toronto, \$4.

Best Pleasure Carriage, two-horse, Hall & Co., Toronto, \$20.

Best Pleasure Carriage, one-horse, Hall & Co., Toronto, \$12.

Best Carriage, child's, Noah L. Piper, Toronto, \$4.

Carriage hubs, rims and felloes, and machine-made spokes, the best assortment J. McMillan & Co., Galt, \$7; 2nd do., Plummer & Pacey, London \$4.

Best Dog cart, Hall & Co., Toronto, \$7; 2nd do., Robert Crow, Scarboro', \$4.

Best Pleasure sleigh, two-horse, J. B. Armstrong, Guelph, \$15.

Best Pleasure Sleigh, one-horse, J. B. Armstrong, Guelph, \$10.

Trotting Sulky, Emanuel Rocky, Malabide, 2nd prize, \$3.

Best Wheels, one pair of carriage, unpainted, J. Breckon, Scarboro', \$4; 2nd do., James McMillan & Co., Galt, \$2.

**Extra Prizes.**

Messrs. James McMillan & Co., an assortment of Carriage-Maker's Work, \$4; Andrew McBeth, Richmond Hill, 6 Pole Yokes, \$3; Turnbull & Co., Hamilton, set of Thimble Skein Waggon Boxes, \$2; Moore & Childs, Buffalo, New York, a Car Axle, \$8 and diploma; McKinlay & Saunders, St. Catharines, for a large and excellent assortment of Carriage and Cutter Stuff, \$11 and a diploma.

**CLASS XXXVII.—CHEMICAL MANUFACTURES AND PREPARATIONS.**

*Judges*—Dr. Beatty, Cobourg; Edward Harvey, Guelph; W. Saunders, London.

Best Colours, assortment, Toronto Linseed Oil Company, \$6.

Best Oils, Linseed, Toronto Linseed Oil Company, \$6.

Neat's Foot Oil, Peter R. Lamb & Co., Toronto, 2nd Prize, \$1.

Best Pitch, 30 lbs., M. C. Luke, Angus, \$5.

Best Resin, 30 lbs., Peter Irish, Brighton, \$5; 2nd do., M. C. Luke, Angus, \$5.

Best Tar, one gallon, Henry Sylvester, Darlington, \$3; 2nd do., M. C. Luke, Angus, \$2.

Best Turpentine, Spirits of, one gallon, Peter Irish, Brighton, \$5; 2nd do., M. C. Luke, Angus, \$3.

**Extra Prizes.**

Lyman, Elliot & Co., Toronto, one case each of Perfumery, Powdered Drugs, Chemicals, and Pharmaceutical Preparations, \$10 and Diploma; W. Williams, Toronto, assortment of Perfumery, \$4; Henry T. Bell, Toronto, Burning Oil and Benzine, \$4; Ingles J. Spence, Brantford, Patent Illuminating Oil, \$4; G. Shaw, Port Burwell, Chinese Cement, \$2; M. W. Irish, Toronto, Illuminating Crude Oil, \$5; Hugh Miller, Tick Destroyer in Sheep, \$3; B. A. Illuminating Oil Co., for Lubricating Oils, \$2.

The Judges report the Dry Colours by the Toronto Linseed Oil Co., as of "very fair quality;" and their Linseed Oil, both raw and boiled samples, as of "very good quality." The Resin and Spirits of Turpentine, by Mr. Peter Irish, as "very superior," and similar articles by M. C. Luke, of Angus, and Tar by H. Sylvester, Darlington, of "very good quality." In the case of Perfumery, by Messrs. Lyman & Elliott, some very good samples of the better Perfumes; also, "a fine collection of Powdered Drugs, of 95 samples;" and "a very superior collection of Chemicals and Pharmaceutical Preparations," by the same firm. Several others of the extras are also highly commended.

**CLASS XXXVIII.—DECORATIVE AND USEFUL ARTS, DRAWING AND DESIGNS.**

*Judges*—Messrs. W. Edwards, Woodstock; George Cormack, Whitby; and Wm. Boys, Barrie.

Best Engraving on wood, with proof, McKeon & Halley, Toronto, \$6.

Best Engraving on Copper, with proof, John Ellis, Toronto, \$6.

Best Goldsmiths' Work, Messrs. J. G. Joseph & Co., Toronto, \$6.

Best Gold and Silver Leaf, C. H. Hubbard, Toronto, \$4.

Best Geometrical Drawings, of engine or mill work, coloured, R. A. Peterson, Brantford, \$6; 2nd do., Andrew McIlwraith, Galt, \$4.

Best Lithographic Drawing, plain, W. C. Chewett & Co., Toronto, \$6; 2nd do., Mrs. Fitzgibbons, Toronto, \$4.

Best Lithographic Drawing, coloured, W. C. Chewett & Co., Toronto, \$6; 2nd do., Mrs. Fitzgibbons, Toronto, \$4.

Best collection of Mathematical, Philosophical and Surveyors' Instruments, Chas. Potter, Toronto, \$15; 2nd do., Chas. Hearn, Montreal, \$10.

Best Modelling in Plaster, Wilkens & Bunning, London, \$6.

Best Monumental Headstone, Robert Sheppard, Toronto, \$6.

Best Picture Frame, ornamented, gilt, R. Phillips, Toronto, \$8; 2nd do., Wm. Scott, Montreal, \$5.

Best Penmanship, business hand, without flourishes, Musgrove & Wright, Toronto, \$4; 2nd do., Bryant, Stratton & Odell, Toronto, \$2.

Best Penmanship, ornamental (not pen and ink pictures), Bryant, Stratton & Odell, Toronto, \$4; 2nd do., Wm. Bruce, Hamilton, \$2.

Best Sign Writing, Geo. Booth, Toronto, \$5.

Best silversmiths' work, J. G. Joseph & Co., Toronto, \$6.

Best Stained Glass, collection of specimens, Joseph McCausland, Toronto, \$12; 2nd do., Theodore Lyon, Toronto, \$8.

**Extra Prizes.**

John Ellis, jun., Toronto, specimen of Heraldic painting, \$3 and Diploma; Thomas Russell & Sons, Liverpool, England, marine and pocket chronometers, Diploma; T. J. Jones, Bowmanville, a case of Dental work, \$4 and Diploma; C. H. Hubbard, Toronto, dentist's Gold and Tin Foil, \$2; Frederick Guggisberg, Preston, Moulding, \$4; Charles F. Muller, Hamilton, ornamental Sign, japanned and pearly, \$2; Hurd, Leigh & Co., Toronto, painted and gilt China and Earthenware, \$5 and Diploma; Wilkens & Bunning, London, Sleeping Child in marble, \$2; W. C. Chewett & Co., assortment of Labels and Map of the City of Toronto, \$4; William Irving, Toronto, two architectural Designs, \$3; D. D. Young, Hamilton, two Puzzle Frames, \$2; Isaac Thompson, Toronto, a large Doll House, \$4; D. D. Robertson, Toronto, Photographic Back-grounds, \$3.

**CLASS XXXIX.—FINE ARTS.**

**Professional List.—Oil (Originales).**

Judges—Geo. A. Barber, Toronto; R. D. Chatterton, Cobourg; John Popham, Montreal.

Best Animals from life, R. Whale, Burford, \$12; 2nd do., W. N. Cresswell, Harpurhay, \$7.

Best Historical or general figure subject, R. Baigent, Toronto, \$12; 2nd do., R. Whale, Burford, \$7.

Best Landscape, Canadian subject, W. N. Cresswell, Harpurhay, \$12; 2nd do., R. Whale, Burford, \$7.

Best Landscape or Marine painting, not Canadian subject, W. N. Cresswell, Harpurhay, \$10.

Best Marine painting, Canadian subject, J. Forbes, Toronto, \$12; 2nd do., R. Whale, Burford, \$7.

Best Portrait, John Forbes, Toronto, \$10; 2nd do., G. Irwin, Newmarket, \$6.

Best Still Life, T. M. Martin, Toronto, \$10; 2nd do., Samuel Hawksett, Montreal, \$6.

**In Water Colours (Originals).**

Best Animals from life, G. A. Gilbert, Toronto, \$7; 2nd do., D. Fowler, Amherst Island, \$5.

Best Historical or general figure subject, D. Fowler, Amherst Island, \$7.

Best Landscape, Canadian subject, W. N. Cresswell, Harpurhay, \$7; 2nd do., D. Fowler, Amherst Isl., \$5.

Best Landscape or Marine painting, not Canadian subject, D. Fowler, Amherst Island, \$7; 2nd do., John H. Caddy, Hamilton, \$5.

Best Marine view, Canadian subject, W. N. Cresswell, Harpurhay, \$7; 2nd do., D. Fowler, Amherst Isl., \$5.

Best Portrait, D. Fowler, Amherst Island, \$6; 2nd do., F. A. Verner, Toronto, \$4.

Best Still Life, D. Fowler, Amherst Island, \$6; 2nd do., G. A. Gilbert, Toronto, \$4.

**Pencil, Crayon, &c. (Original).**

Best Crayon, colored, D. Fowler, Amherst Isl., \$6.

Best Crayon, plain, D. Fowler, Amherst Island, \$6.

Crayon Portrait, 2nd Prize, D. Fowler, Amherst Island, \$4.

Best Pencil Drawing, G. A. Gilbert, Toronto, \$6; 2nd do., D. Fowler, Amherst Island, \$4.

Best Sepia Drawing, John H. Caddy, Hamilton, \$6; 2nd do., D. Fowler, Amherst Island, \$4.

**Professional List—Oil (Copies).**

Best Animals, from life, T. M. Martin, Toronto, \$6; 2nd do., W. E. Wright, Niagara, \$4.

Best Historical or general figure subject, J. W. Bridgman, Toronto, \$6; 2nd do., Miss H. N. Harrison, Hamilton, \$4.

Best Landscape, Miss H. N. Harrison, Hamilton, \$6; 2nd do., Mrs. Fitzgibbon, Toronto, \$4.

Best Marine painting, T. M. Martin, Toronto, \$6; 2nd do., Mrs. Fitzgibbon, Toronto, \$4.

**In Water Colours (Copies).**

Best Animals, from life, T. M. Martin, Toronto, \$4.

Best Landscape, Richard Baigent, Toronto, \$4.

**Pencil, Crayon, &c. (Copies).**

Best Crayon, colored, Miss H. N. Harrison, Hamilton, \$4.

**Amateur List—Water Colours (Original).**

Best Animals, from life, Miss Philpots, Toronto, \$7; 2nd do., W. Ambrose, Hamilton, \$5.

Best Historical or General figure subject, C. J. S. Bethune, Cobourg, \$7.

Best Landscape, Canadian subject, Mrs. E. Berry, Kingston, \$7; 2nd do., W. Ambrose, Hamilton, \$5.

Best Landscape or Marine painting, not Canadian subject, Miss J. Clements, Toronto, \$7.

Best Marine view, Canadian subject, W. Ambrose, Hamilton, \$7; 2nd do., Mrs. E. Berry, Kingston, \$5.

Best Portrait, A. E. Walker, Hamilton, \$6.

Still Life, Miss McMurrich, Toronto, \$6.

**Amateur List—Oil (Copies).**

Best Animals, from life, Miss E. E. E. Gourlay, Hamilton, \$5.

**In Water Colours (Copies).**

Best Historical or general figure subject, A. E. Walker, Hamilton, \$4; 2nd do., J. S. Sykes, Quebec, \$2.

Best Landscape, M. Hallen, Penetanguishine, \$4; 2nd do., W. Ambrose, Hamilton, \$2.

Best Marine view, Miss J. Gordon, Toronto, \$4; 2nd do., M. Hallen, Penetanguishine, \$2.  
Portrait, Miss E. Robertson, Colborne, 2nd prize, \$2.  
Still Life, Miss McMurrich, Toronto, 2nd prize, \$2.

**Pencil, Crayon, &c., (Copies).**

Crayon, coloured, Miss E. J. Tompson, Toronto, 2nd prize, \$2.  
Best Crayon, plain, Miss McTavish, Toronto, \$4; 2nd do., Miss Savage, Guelph, \$2.  
Best Crayon Portrait, W. Bruce, Hamilton, \$4.  
Best Pencil Drawing, A. E. Walker, Hamilton, \$4; 2nd do., Miss McMurrich, Toronto, \$2.  
Best Sepia Drawing, J. T. Rolph, Toronto, \$4.

**Photography.**

Best Photograph Portraits, collection of, in duplicate, one set coloured, J. Ingles, Montreal, \$10; 2nd do., R. W. Anderson, Toronto, \$6.  
Photograph Portraits collection of, plain, J. Ingles, Montreal, \$8; 2nd do., Geo. Burrows, Milton, \$5.  
Best Photographs, Landscapes and Views, collection of, Jao. Hollingsworth, Toronto, \$8; 2nd do., E. Spencer, Ottawa, \$5.  
Best Photograph Portrait, finished in oil, F. A. Verner, Toronto, \$8; 2nd do., D. C. Butchart, Toronto, \$5; Special do., Mrs. McCarthy, Toronto \$3.  
Best Photograph Portrait, finished in Indian ink, R. W. Anderson, Toronto, \$6; 2nd do., F. A. Verner, Toronto, \$4.  
Best Photograph Portrait, finished in water colours, F. A. Verner, Toronto, \$6; 2nd do., R. W. Anderson, Toronto, \$4.

**Extra Entries.**

Miss E. E. E. Gourlay, Hamilton, etching Animals, (Originals), \$4; D. Fowler, Amherst Island, pen and ink sketch, \$3; W. E. Wright, Niagara, Fruit painting in oil, \$4; Miss Morrison, Toronto, Flowers in water colours, \$3; Miss McTavish, Toronto, Crayon sketch, \$4; Miss Jessie Clements, Toronto, Flowers in water colours, \$4; Johnny Faint, Port Perry, pen and ink sketch, \$3; V. Casci, Toronto, Plaster of Paris cast, \$2; Miss Evans, Toronto, Miniature Portrait, \$3; Mrs. S. McCarthy, Toronto, Bust of the late Prince Consort, and Group of Flowers, \$3; Mrs. Fitzgibbon, Toronto, Wild Flowers in water colours, \$6; Do., Flowers in Water Colours, \$4; Miss Bowen, Barton, pen and ink sketch, \$5; J. T. Rolph, Toronto, pen and ink drawing, \$3; James Inglis, Montreal, Porcelain Portrait, \$2.

The Judges in this class reported commendatory or otherwise, in almost every section of this extensive department, which will be found in a more or less condensed form in our general notice of the *Fine Arts* in this number of the Journal.

The Judges also report their doubts as to the right of Mr. John H. Whale, of Burford, entering as an amateur; and therefore, so as not to do him, or the amateurs proper, any injustice, recommend him the following 1st class special prizes:—

**ORIGINAL, IN OIL.**

Landscape,	"	"	8	00
Marine View, Canadian,	"	"	8	00
Landscape, copy, in oil,	.	.	5	00

**CLASS XL — GROCERIES AND PROVISIONS.**

*Judges*—W. H. Spencer, Barrie; E. A. McNaughton, Cobourg; Jackson Ford, Brantford.  
Best Barley, Pearl, 25 lbs., R. King, Hamilton, \$3.  
Best Barley, Pot, 25 lbs., Robt. King, Hamilton, \$3.  
Best Bottled Fruits, an assortment, manufactured for sale, Miss E. J. Lyons, East Flamboro', \$6; 2nd do., A. F. Currie, Niagara, \$4.  
Best Bottled Pickles, an assortment, manufactured for sale, Chas. Holt, Brooklin, \$6; 2nd do., Miss E. J. Lyons, \$4.  
Best Buckwheat Flour, 25 lbs., P. Bartholomew, Markham, \$3; 2nd do., Robt. King, Hamilton, \$2.  
Best Chickory, 20 lbs., prepared, George Pears, Toronto, \$3; 2nd do., D. Crawford & Co., Toronto, \$2.  
Best Indian Corn Meal, 25 lbs., Robert King, Hamilton, \$3.  
Best Oatmeal, 25 lbs., Chas. Russell, Claremont, \$3; 2nd do., John R. Wissler, Nichol, \$2.  
Best Soap, one box of common, D. Crawford & Co., Toronto, \$4; 2nd do., Chas. Watts, Brantford, \$3.  
Best collection of assorted Fancy Soaps, J. G. Hearle, Montreal, \$6; 2nd do., Charles Watts, Brantford, \$4.  
Best 12 lbs. Starch (corn), D. Crawford & Co., Toronto, \$2.  
Best 14 lbs. Tobacco, Canadian manufactured, Joak Scales, Toronto, \$5; 2nd do., Solomon & Piper, Toronto, \$3.  
Best 50 lbs. Wheat Flour, George Wheler, Uxbridge, \$7; 2nd do., E. D. Tillson, Dereham, \$5.

**Extra Prizes.**

Assortment of Biscuits, John Nasmith, Toronto, \$4; assortment of Spices, D. Crawford & Co., Toronto, \$3; box Tallow Candles, Chas. Watts, Brantford, \$2; Canadian Salt, Henry Sylvester, Darlington, \$2; Cigars, Solomon & Piper, Toronto, \$1; Tomato Soup, Club House, Conserves & Co., Boston, U. S., Diploma.

**CLASS XLI.—LADIES' WORK.**

*Judges*—Mrs. F. W. Coate, Toronto; Mrs. F. W. Fearman, Hamilton; Miss C. Stephens, Cobourg.  
Best Bead Work, Miss E. V. Glen, London, \$3; 2nd do., Miss E. Shadbolt, Hamilton, \$2; 3rd do., Mrs. Rajsh, Toronto, \$1.  
Best Braiding, Mrs. Dr. Bates, Hamilton, \$3; 2nd do., Miss E. J. Lyons, Flamboro', \$2; 3rd do., Miss Mary Strickland, Whitby, \$1.  
Best Cone work, Miss E. J. Lyons, Flamboro', \$3; 2nd do., J. Siesley, Scarborough, \$2; 3rd do., Mrs. A. Storme, Odessa, \$1.  
Best Crochet work, Miss M. Strickland, Whitby, \$3; 2nd do., Miss G. J. Loscomb, Bowmanville, \$2; 3rd do., Miss Arnoldi, Toronto, \$1.  
Best Embroidery in Muslin, Miss Ramsay, Kingston, \$3; 2nd do, Miss H. Bidwell, Cramahe, \$2; 3rd do. Mrs. Dr. Bates, Hamilton, \$1.

Best Embroidery in Cotton, Miss Mary Strickland, Whitby, \$3; 2nd do., Miss Ramsay, Kingston, \$2; 3rd do., Miss S. Bennett, Cobourg, \$1.

Best Embroidery in Silk, Miss S. Barker, Markham, \$3; 2nd do., Mrs. Rowe Whitby, \$2; 3rd do., Miss Nancy Strickland, Whitby, \$1.

Best Embroidery in Worsted, Mrs. G. L. Beardmore, Toronto, \$3; 2nd do., Miss Ramsay, Kingston, \$2; 3rd do., Miss Barker, Markham, \$1.

Best Flowers, silver wire, Mrs. A. Storms, Odessa, \$2; 2nd do., Mrs. Garbut, Bowmanville, \$1; 3rd do., Miss A. Taylor, Scarboro', 50c.

Best Flowers, feather, Mrs. A. Storms, Odessa, \$2;

Best Gloves, 3 pairs, Jane Swinton, Smith, \$2; 2nd do., Mrs. Harper, King, \$1.

Best Guipure work, Mrs. Dr. Bates, Hamilton, \$3; 2nd do., Miss E. J. Lyons, Flamboro', \$2; 3rd do., Miss H. Bidwell, Cramahe, \$1.

Best Hair Work, Miss N. Strickland, Whitby, \$3; 2nd do., James Park, East Oxford, \$2; 3rd do., Miss A. Carte, Toronto, \$1.

Best Knitting, Mrs. D. Wright, Leslieville, \$3; 2nd do., Miss Ramsay, Kingston, \$2; 3rd do., Miss Beith, Darlington, \$1.

Best Lace work, Mrs. Manly, Toronto, \$3; 2nd do., Miss H. Bidwell, Cramahe, \$2; 3rd do., Miss E. Shadbolt, Hamilton, \$1.

Best Family Machine Sewing, Mrs. C. F. Muller, Hamilton, \$2; 2nd do., Miss E. Simmerman, Toronto, \$1.

Best Mittens, 3 pairs woollen, Mrs. Harper, King, \$2; 3rd do., Mrs. D. Clarke, Puslinch, 50c.

Best Moss Picture, Miss Shaw, Toronto, \$3; 2nd do., Mrs. A. Carte, Toronto, \$2; 3rd do., Mrs. Jas. Park, Oxford, \$1.

Best Moss Work, Mrs. Devaney, Toronto, \$2; 2nd do., Mrs. A. Storms, Odessa, \$1; 3rd do., Miss Beith, Darlington, 50c.

Best Needlework, ornamented, Mrs. M. Marr, Brockville, \$3; 2nd do., Miss E. J. Lyons, Flamboro', \$2; 3rd do., Mrs. Grey, Todmorden, \$1.

Best Netting, fancy, Miss M. Strickland, Whitby, \$3; 2nd do., Mrs. A. Dredge, Toronto, \$2; 3rd do., Mrs. Harper, King, \$1.

Best Plait for bonnets or hats, of Canadian straw, Jane Swinton, Smith, \$3; 2nd do., Mrs. John Patterson, Scarboro', \$2.

Best Silk Quilt, Miss Davy, Belleville, \$2; 2nd do., Miss H. Armitage, Toronto, \$1; 3rd do., Mrs. Capt. Stewart, Hamilton, 50c.

Best Quilt, patch-work, Mrs. N. Rannie, Toronto, \$2; 2nd do., Mrs. James Parke, Oxford, \$1; 3rd do., Mrs. Sellars, Toronto, 50c.

Best Gentlemens' Shirt, Mrs. M. Marr, Brockville, \$3; 2nd do., Mrs. W. A. Neads, Bowmanville, \$2; 2nd do., Miss S. Bennett, Cobourg, \$1.

Best three pairs of Woollen Socks, Mrs. G. Bennett, Cobourg, \$2; 2nd do., Mrs. E. D. Moore, Eglinton, \$1.

Best Stockings, three pairs Woollen, Mrs. Harper, King, \$2; 2nd do., Mrs. E. D. Moore, Eglinton, \$1.

Best Tatting, Miss Ramsey, Kingston, \$3; 2nd do., Miss Sophia Beasley, Hamilton, \$2; 3rd do., Miss Marygold, Yorkville, \$1.

Best Wax Flowers, Miss A. L. Symons, Toronto, \$6; 2nd do., Mrs. A. Dredge, Toronto, \$4; 3rd do., Miss Collar, Toronto, \$2.

Best Wax Fruit, Miss Collar, Toronto, \$6; 2nd do., Miss McEvers, Hamilton, \$4; 3rd do., Mrs. Rowe, Whitby, \$2.

Best Wax Shells, a collection of, Miss A. Taylor, Scarboro', \$3.

Best Worsted Work, Miss E. J. Lyons, Flamboro, \$3; 2nd do., Miss Davy, Belleville, \$2; 3rd do., Miss Evans, Toronto, \$1.

Best Worsted Work, fancy, for framing, Miss Kate Cotter, Dunnville, \$3; 2nd do., Mrs. Benham, Guelph, \$2; 3rd do., Miss L. F. Keebler, Toronto, \$1.

Best Worsted Work, raised, Miss E. Grover, Colborne, \$3; 2nd do., Mrs. G. B. Fraser, Guelph, \$2; 3rd do., Miss E. J. Lyons, Flamboro', \$1.

Best Wreath, Flower, Miss C. Warne, Cobourg, \$2; 2nd do., Miss Choate, Port Hope, \$1; 3rd do., Miss Hattie Johnson, Willowdale, 50c.

Best Wreath, Seed, Mrs. Thomas Stewart, Yorkville, \$2; 2nd do., Miss McEvers, Hamilton, township, \$1; 3rd do., Miss M. Bennett, Toronto, 50c.

**Extra Entries.**

Mrs. James Parke, Oxford, Fancy Quilt, \$3; Miss H. Bidwell, Cramahe, Irish Work, \$2; Miss Beatty, Toronto, Banner Screen, \$2; Miss Mary Strickland, Whitby, Rag Rug, \$2; Miss Thompson, Toronto, Leather Work, \$3; Mrs. E. Crown, Yorkville, Rag Mat, \$2; Mrs. C. Miller, Norval, Quilt, \$2; Miss Ellen Passmore, Feather Fans, \$2; Miss E. Owens, Toronto, Breakfast Shawls, \$2; Miss C. Warne, Cobourg, Crystal Painting, \$1; Edward Sait, City of Ottawa, Flannel Shirts, \$2; Miss E. Shadbolt, Hamilton, two Pillows for Heniton, Lace, \$2; R. H. Gray, Toronto, Lot of Hoop Skirts, \$3.

**CLASS XLII.—MACHINERY, CASTINGS AND TOOLS.**

Judges—W. P. Marston, Toronto; E. F. Hanson, London; C. Levy, Toronto.

Best Blacksmith's Bellows, Joseph Westman, Toronto, \$4.

Best Castings for General Machinery, Dickey, Neill & Co., Toronto, \$15.

Best Cast Wheel, spur or bevel, not less than 50 lbs. in weight, Dickey, Neill & Co., Toronto, \$8.

Best Castings for Railways, railway cars, and locomotives, assortment of, Dickey, Neill & Co., \$20.

Best Cordwood Sawing Machine, horse-power, Elijah Leonard, London, \$10; 2nd do., Haggart Bros., Brampton, \$6.

Cordwood Sawing Machine, hand power, 2nd prize (no first), T. & W. Walker, Brampton, \$6.

Best Stationary Steam Engine, over five horse power, C. H. Waterous & Co., Brantford, \$25.

Best Machines for Planing and Drilling Metals, McKechnie & Bertram, Dundas, \$12.

Best Pump, in metal, D. S. Keith, Toronto, \$6.

Best Refrigerator, D. S. Keith, Toronto, \$6.

Best Saw Mill, steam, in operation, C. H. Waterous & Co., Brantford, \$20.

Best Sash and Moulding Machine, McKechnie & Bertram, Dundas, \$12 and Diploma.

Best Shingle Splitting Machine, C. H. Waterous & Co., Brantford, \$6.

Best Skates, an assortment, H. Aston, Toronto, \$6.

Best Turning Lathe, first class prizes awarded to both John Feansom, Toronto, and McKechnie & Bertram, Dundas, the workmanship and adaptation to work to be done being so nearly equal.

#### Extra Prizes.

George Campbell, Toronto, a Spangle Machine, \$4; A. Whiter, Toronto, a Machine for striking an Electric Light, \$1; Union Buttonhole Machine Company, Boston, Mass., a Buttonhole Machine, \$2; Singer Company, Sewing Machines, \$3; Turnbull & Co., Hamilton, Specimens of Castings, \$3; P. J. Ayers, Peterboro', Improved Tire Upsetting Machine, \$3; Dickey, Neill & Co., Forgings of Sucker-rods and Joints for Oil Wells, \$5; R. D. Chatterton, Cobourg, model of Self-acting Coupling for railway carriages, \$5; Dickey, Neill & Co., a Brewer's Mashing Machine, \$5; A. Becker, Montreal, one Sheet Machine Card and assortment of Wool Card, a Diploma; R. H. Gray, Toronto, machine for covering Crinoline Wire, a Diploma; J. R. Harrington, Brooklyn, N. Y., a Self-Rarifying Tuyere Iron, \$4; W. E. Beebe, Markham, Pump Augur and Rimmer, \$4; C. Irwin & Co., Belleville, Family Sewing Machine, \$6; Eyre Theursson, Ancaster, Card Clothing Setting Machine, \$8 and Diploma; R. M. Wanzer & Co., Hamilton, Manufacturing and Family Sewing Machines, \$4; Morris & Miller, Perth, four box double reverse Crompton Loom, \$6 and Diploma; Wheeler & Wilson Sewing Machine Co., for Family Sewing Machines, \$4; The Lamb Knitting Machine Co., Rochester, N. Y., \$5 and diploma; Gates & Co., Toronto, Family Sewing Machine, \$4; Mr. Baines, Toronto, Forge Rolling Machine, a new Railroad Track, Hammer for Steel Tipping railroad rails, and Hammer for making solid Railroad Crossing Tracks, \$10 and Diploma; John Lezier, Belleville, a Domestic Spinner, \$4; James Davis, Oneida, model steam saw mill, \$6; James Myers, Toronto, a Clothes Wringer, \$2; Miall & Co., Oshawa, a Dove-Tailing Machine, \$5 and Diploma; J. A. Campbell, Whitby, Mailing Machines, \$5; R. D. Chatterton, a Collision Buffer for railroads, \$5; Moore & Childs, Buffalo, Oil Mining Tools, \$10 and Diploma; W. J. Lucas, London, a Spinning Wheel, \$3; Wm. H. Dell, Strathroy, a Spinning Wheel, \$2; Noah L. Piper, Toronto, Ventilators and Smoke Conductors, \$4 and Diploma; Levi Jones, Markham, Amalgam Bells, \$5; H. T. Smith, Toronto, a Soda Water Machine and Fountain, \$4 and Diploma; John Hunford, Toronto, a Saw Setting Machine, \$3; F. P. G. Taylor & Co., Toronto, Anti-Friction Metal for Journal Bearing, \$2; C. H. Waterous & Co., a Lath Machine, \$4; A. E. Outerbridge, Hamilton, Electric Battery to prevent corrosion in Steam Boilers.

#### CLASS XLIII.—METAL WORK (MISCELLANEOUS), INCLUDING STOVES.

##### Miscellaneous.

Judges—John Doty, Oakville; William Trotter, Galt; Major Harper, Whitby.

Best Coppersmith's work, an assortment, Booth & Son, Toronto, \$8; 2nd do., J. G. Beard & Sons, Toronto, \$5.

Best Engineer's Brass work, an assortment, Morrison & Ellis, Toronto, \$8; 2nd do., John Ritchie, Toronto, \$5.

Best Fire Arms, an assortment, A. Grainger & Son, Toronto, \$8.

Best fire-proof Office Safe, J. & J. Taylor, Toronto, \$8; 2nd do., Thompson & Burns, Toronto, \$5.

Best Gas Fixtures, an assortment, D. S. Keith, Toronto, \$7.

Best Iron Fencing and Gate, ornamental, Dickey, Neill & Co., Toronto, \$8.

Best Iron work, from the hammer, ornamental, Moore & Childs, Buffalo, \$7.

Best Iron work, ornamental cast, Dickey, Neill & Co., Toronto, \$7.

Best Locksmith's work, an assortment, L. J. Lawlor, Toronto, \$8; 2nd do., Wm. C. Evans, Kingston, \$5.

Best Plumber's work, an assortment, John Ritchie, Toronto, \$8; 2nd do., George Harding, Toronto, \$5.

Best Screws and Bolts, an assortment, J. P. Billington, Canada Screw Company, Dundas, \$6.

Best Sheet Brass work, an assortment, Booth & Son, Toronto, \$8.

##### Stoves.

Cooking Stove, for wood, J. R. Armstrong & Co., Toronto, \$6; 2nd do., Copp Bros., Hamilton, \$4.

Cooking Stove, for coal, J. G. Beard & Son, Toronto, \$6; 2nd do., J. R. Armstrong & Co., Toronto, \$4.

Furniture for cooking stove, one set, J. R. Armsirong & Co., Toronto, \$5.

Hall Stove, for wood, J. R. Armstrong & Co., Toronto, \$5; 2nd do., Copp Bros., Hamilton, \$3.

Hall Stove, for coal, J. G. Beard & Sons, Toronto, \$5; 2nd do., J. E. Armstrong & Co., Toronto, \$3.

Parlour Stove, for wood, J. G. Beard & Son, Toronto, \$5; 2nd do., John McGee, Toronto, \$3.

Parlour Stove, for coal, Copp Bros., Hamilton, \$5; 2nd do., John McGee, Toronto, \$3.

Parlour Grate, E. & C. Gurney, Hamilton, \$5.

##### Extra Entries.

Eyre Theursson, Ancaster, Card Clothing, a Diploma; James Turner & Bro., Ingersoll, Weighing Can for milk, \$3; Noah L. Piper, Signal Lanterns and Water Filters and Coolers, \$4; Morrison & Ellis, Toronto, Steam Guages, \$4; J. R. Armstrong, & Co., Toronto, Ice Cream Freezer, \$2; McGregor & Higley, Oshawa, Mops, \$1; H. T. Smith, Toronto, Coal Oil Chandeliers and Beer Taps, brass work, \$2 and Diploma; Forsyth & Co., Dundas, Card Clothing, a Diploma; George Harding, Toronto, a hot water iron pipe Boiler, and Steam Pipe and Sorew for heating buildings, \$11; Copp Bros., Hamilton, a large Hotel Stove, \$6 and



Diploma; Copp Bros., Hamilton, a Parlour Cooking Stove and Thimble for passing stove-pipe through floors, \$5; Noah L. Piper, Toronto, a Bath and Toilet Set, \$2; J. R. Armstrong & Co., Toronto, Hollow-ware, a Diploma; T. C. Collins, Toronto, Steam Gauges and Low-water Indicator, \$10; G. Harding, Toronto, Beer Pumps, \$3; Gordon & Taylor, Toronto, a collection of Hardware, \$5; Wm. Gill, Toronto, a Low-water Indicator, a Diploma; Jas. Izzard, Toronto, a Burglar's Alarm, \$1; John McGee, Toronto, Farmer's Furnaces and Bark Mill, \$2.

**CLASS XLIV.—MISCELLANEOUS, INCLUDING POTTERY, AND INDIAN WORK.**

*Judges*—D. B. Garton, Barrie; Geo. K. Chisholm, Oakville; Thos Field, Galt.

**Miscellaneous.**

Best Brushes, an assortment, Chas. Boeckh, Toronto, \$6; 2nd do., A. Green, Hamilton, \$4.  
 Best Model of a steam vessel, R. Osborne, Newburgh, \$6.  
 Best Model of a sailing vessel, Richard Osborne, \$6.

**Pottery.**

Best Filterer for water, W. Lea, York Township, \$3.  
 Best Pottery, an assortment, W. Campbell, Hamilton, \$8; 2nd do., W. Lea, York Township, \$5.  
 Best Sewerage Pipes, stoneware, assortment of sizes, Plant & Warwood, Yorkville, \$10; 2nd do., W. Campbell, Hamilton, \$6.  
 Best Stench-traps for drains, stoneware, Thomas Nightingale, Yorkville, \$3; 2nd do., Plant & Warwood, Yorkville, \$2.  
 Best Stoneware, an assortment, N. Eberhardt, Toronto, \$10.

A number of Indians from Caughnawaga, obtained prizes in work of their kind.

**Extra Prizes.**

Thos. Townley, Yorkville, assortment of Flooring Tile, \$6; J. Copley, Toronto, assortment of gents and ladies Wigs, Tresses, &c., \$3 and Diploma; C. Bausley, Toronto, case of Wigs, Bands, &c., \$2.; R. Renardson, a Shooting Skiff, \$3; Canada Glass Company Montreal, assortment of Glassware, \$5 and Diploma; P. J. Merritt, St. Catharines, Historic Map, \$2; W. Len, York, Garden Vases, \$2; James Hodges, Arthabaska, prepared Peat Fuel, \$4.

**CLASS XLV.—MUSICAL INSTRUMENTS.**

*Judges*—John Carter, Toronto; Wm. Burrowes, Kingston; Charles Beckett, Hamilton.

Best Harmonium, R. S. Williams, Toronto, \$12; 2nd do., Andrus, Bros., London, \$8.  
 Best Melodeon, R. S. Williams, Toronto, \$6; 2nd do., Andrus, Bros., London, \$4.  
 An Organ, Church, J. F. Rooms, Toronto, \$30.  
 Best Piano, square, John C. Fox, Kingston, \$20; 2nd do., Heintzman & Co., Toronto, \$10.

**Extra Prizes.**

Augustus Newell, Toronto, a Reed Board, \$2; R. S. Williams, Toronto, Rifle and Bass Drums and

Drumheads \$5; Joseph Rainer, Whitby, an Elliptic Piano, specially commended, a Diploma.

The Judges in this class report:—"Owing to the rain leaking through the roof into the Organ, the Judges have been unable to play on that instrument, or to test its qualities; but as the builder is in no way responsible they recommend a special prize equal to the "first prize" offered, \$30, as some sort of a recompense for his loss of time and trouble, and disappointment. The Judges also say they "have noticed with satisfaction the great improvement made by Canadian Manufacturers of Piano Fortes and Harmoniums, and the greatly reduced prices at which they can be sold as compared with imported instruments. In awarding the prizes as between Messrs. Fox and Heintzman, the Judges find some difficulty in deciding, but have given the preference to Mr. Fox. The Judges deprecate the use of pearl keys in piano fortes." The Elliptic Case Piano of Joseph Rainer the Judges recommended for a special prize, as not fairly competing with the ordinary square pianos.

**CLASS XLVI.—NATURAL HISTORY.**

*Judges*—Rev. C. Bethune, Cobourg; Rev. Prof. Hineks, Toronto; Thos. McIlwraith, Hamilton.

Best collection of Stuffed Birds of Canada, classified, and common and technical names attached, S. W. Passmore, Toronto, \$8; 2nd do., Ellen Passmore, do., \$6.  
 Best collection of Native Fishes, stuffed or preserved in spirits, and common and technical names attached, S. W. Passmore, Toronto, \$8; 2nd do., Ellen Passmore, Toronto, \$6.

Mammalia and Reptiles of Canada, stuffed or preserved in spirits, classified, and common and technical names attached, S. W. Passmore, Toronto, \$8.

A collection of Minerals of Canada, named and classified, W. P. Wright, Hamilton, 2nd prize, \$6.

Best collection of Native Plants, arranged in their natural families, and named, Miss Kate M. Smart, Yorkville, \$8.

Best stuffed Birds and Animals of any country, collection of, S. W. Passmore, Toronto, \$8; 2nd do., Robert Bishop, Toronto, \$6.

**Extra Prizes.**

Miss Ellen Passmore, Toronto, case of Stuffed Humming Birds, \$4; Rev. W. P. Wright, Hamilton, Fossils and Shells of Canada, \$6; Francis Kennedy, Toronto, a large Aquarium, complete, \$6 and Diploma.

The Judges recommend that the Prizes in section 1 to 5 be hereafter increased in value, and that Mammalia and Reptiles form separate sections.

**CLASS XLVII.—PAPER, PRINTING, BOOKBINDING, AND TYPE.**

*Judges*—John Walker, St. Catharines; John Edwards, Toronto.

Best Bookbinding (blank-book), assortment of, Brown Bros., Toronto, \$5; 2nd do., W. C. Chewett & Co., Toronto, \$3.

Best Bookbinding (letter-press) assortment of, A. Dredge & Co., Toronto, \$5; 2nd do., W. C. Chewett & Co., Toronto, \$3.

Best Letter-Press Printing, plain, George Brown, *Globe*, Toronto, \$5; 2nd do., W. C. Chewett & Co., Toronto, \$3.

Best Letter-Press Printing, ornamental, G. Brown, *Globe*, Toronto, \$5.

Best Letter-Press Printing, posters, plain and ornamental, John Level, Montreal, \$5; 2nd do., George Brown, *Globe*, Toronto, \$3.

Best Papers, printing, writing and wrapping, one ream of each, Bunting Bros., Toronto, \$6.

Best Papers, blotting and coloured, one ream of each, Bunting Bros., Toronto, \$6.

Best Pocket-Books, Wallets, &c., an assortment, Brown Bros., Toronto, \$6.

#### Extra prizes.

John Level, Montreal, series of School Books, highly commended; Bunting Bros., Toronto, Envelopes, \$2; Breed, Grosvenor & Co., Dunnville C.E., set of School Slates, \$3; C. T. Palsgrave, Montreal, assortment of Type, \$4.

#### CLASS XLVIII. — SADDLE, ENGINE HOSE, TRUNK-MAKER'S WORK AND LEATHER.

*Judges*—Thos. Thompson, Toronto, and Thos. Morrow, Cobourg; (Wm. Edwards, Toronto, Umpire in Gentlemen's Saddles, Single Harness, Harness and Skirting Leathers, and Machine Belting.)

#### Saddlery, &c.

Collars, an assortment, R. Nicoll, Toronto, \$5 and Diploma; 2nd do., R. Malcom, Toronto, \$3.

Harness, set of Double Carriage, Thomas Courtice, Reach, \$8; 2nd do., R. Malcom, Toronto, \$5.

Harness set of Single Carriage, R. Nicoll, Toronto, \$7; 2nd do., R. Malcom, Toronto, \$4.

Harness, set of Team, R. Malcom, Toronto, \$5; 2nd do., James Digby, Pickering, \$3.

Best set of Express Harness, R. Nicoll, Toronto, \$6; 2nd do., R. Malcom, Toronto, \$4.

Best Hames, Team or Cart, assortment, R. Nicoll, Toronto, \$5; 2nd do., R. Malcom, \$3.

Best leather Machine Belting, an assortment, W. A. Harvey, St. Davids, \$8; 2nd do., W. Marks, Toronto, \$5.

Best Saddle, Lady's, full quilted, E. Bach, Toronto, \$8; 2nd do., William Steward, Toronto, \$5.

Best Saddle, Lady's, quilted safe, Edward Bach, Toronto, \$6.

Best Saddle, Gentleman's, full quilted, E. Bach, Toronto, \$6.

Gentleman's Saddles, plain shaftoe, Edward Bach, Toronto, and E. Kraft, Hamilton, each first prizes of \$6; 2nd do., Wm. Steward, Toronto, \$3.

Best Trunks, an assortment, R. Malcom, Toronto, \$8; 2nd do., H. E. Clarke, Toronto, \$5.

Valises and Travelling Bags, assortment, R. Malcom, Toronto, \$5; 2nd do., H. E. Clarke, Toronto, \$3.

#### Leather.

Best Leather, 30 lbs., John R. Wissler, Nichol, \$4.

Brown Strap and Bridle, one side of each, John R. Wissler, Nichol, \$4; 2nd do., R. N. Brett, Egmondville, \$3.

Best Deer Skins, three dressed, H. Ferdinand, Waterloo, \$3; 2nd do., G. Richardson, Grafton, \$2.

Best Harness Leather, two sides, John R. Wissler, Nichol, \$4; 2nd do., Robert Lingwood, Fergus, \$3.

Best Skirting for Saddles, two sides, Robert Lingwood, Fergus, \$4; 2nd do., J. R. Wissler, Nichol, \$3.

#### Extra Entries.

John R. Wissler, Nichol, Card Leather, \$2; R. Malcom, Toronto, Cart Harness and Sample Case, \$5; William Steward, Toronto, Military Equipments and Leggings, \$4, and Stud Horse Gear, \$2; E. Kraft, Hamilton, Somerset Saddle, \$5; E. L. Brazenor, Hamilton, Improved Collar Block, \$3.

The Full Quilted Ladies' Saddles, by Mr. Bach and Mr. Steward, are so nearly equal in quality, as to entitle both to the designation of "First Class" Saddles, although the preference is given to Mr. Bach's. The Judges report plain Shaftoe Saddles, by Mr. Bach, of Toronto; and Mr. Kraft, of Hamilton, as so "nearly equal and so very good, that they recommend first class prizes for both; and that the Saddle of Mr. Steward was "also very good, but little indeed inferior to the other two." The Judges also report the Harness Leather by Messrs Parrish, Elliott & Dixon, Hewer, and Barbour, as little inferior to those to which the prizes were awarded; and generally report that the whole class of Leathers, as well as made up stock, is very superior, and shows a marked progress on previous years.

#### CLASS XLIX. — SHOE AND BOOTMAKERS' WORK, LEATHER, &c.

*Judges*.—Wm. McLaren, Guelph; James Baird, Whitby; W. Wilson, Woodstock.

#### Boots, &c.

Best Boots, Ladies', an assortment, G. Martin Toronto, \$7; 2nd do., Alexander Sutherland, Kingston, \$4.

Best Boots, Gentlemen's, Sewed, an assortment, G. Martin, Toronto, \$7; 2nd do., Philip Jacobi, Toronto, \$4.

Best Gents' Pegged Boots, an assortment, Alex. Sutherland, Kingston, \$5.

Best Boot and Shoemakers' Lasts and Trees, an assortment, Iredale & Ward, Toronto, \$8; 2nd do., Matthew Selway, Toronto, \$5.

#### Leather.

Best Calf Skins, John Hewer, Guelph, \$3; 2nd do., R. N. Brett, Egmondville, \$2.

Best Calf Skin, Grained, Robert Lingwood, Fergus, \$3; 2nd do., John R. Wissler, Nichol, \$2.

Best Calf Skins, Morocco, Robert Lingwood Fergus, \$3; 2nd do., John R. Wissler, \$2.

Best Cordovan, two Skins, John R. Wissler, \$3; 2nd do., Robert Lingwood, \$2.

Best Dog Skins, two Dressed, Robert Lingwood, \$3; 2nd do., John R. Wissler, \$2.

Best Kip Skins, two Sides, Robert Lingwood, \$3; 2nd do., Samuel Parish, Brock, \$2.

Best Kip Skins, Grained, J. R. Wissler, \$3; 2nd do., John Hewer, \$2.

Best Linings, six Skins, Henry Fredinand, Waterloo, \$3; 2nd do., John Hewer, \$2.

Best Sheep Skins, six Coloured, John Hewer, \$3.

Best Sole Leather, two Sides, Charles Keller, Chippawa, \$3; 2nd do., H. Hamilton, Milburn, \$2.

Best Upper Leather, two Sides, Elliot & Dixon, Albion, \$3; 2nd do., Samuel Parish, \$2.

Best Upper Leather, Grained, two Sides, Elliot & Dixon, \$3; 2nd do., John R. Wissler, \$2.

**Extra Prizes.**

John R. Wissler, Nichol, Buff Waxed Leather, \$2; do., Pebled Grain, \$2; do., Satin Calf, \$2; do., Calf Kid, \$2; Robert Lingwood, Fergus, Splits, \$2; do., Buffed Deer Skins, \$2; James Shannon, Stratford, Leather Roller or Stretcher, \$2.

**CLASS L.—WOOLLEN, FLAX, AND COTTON GOODS, AND WEARING APPAREL.**

*Judges*—F. W. Coate, Toronto; George Harcourt, Toronto.

Best Bags, from flax or hemp, the growth of Canada, one dozen, Elliott & Hunt, Preston, \$8.

Best Bags, one dozen, cotton, J. Wright, Dundas, \$4.

Best Blankets, woollen, one pair, Slingsby & Kitchen, Canning, \$6 and diploma; 2nd do., Mrs. Harper, King, \$4.

Best Calico, unbleached, one piece, Joseph Wright, Dundas, \$5; 2nd do., Gordon & McKay, Toronto, \$3.

Carpet, woollen stair, 2nd prize, Miss Beeth, Darlington, \$4.

Best Carpet, rag, one piece, Mrs. M. A. Watts, Toronto, \$5; 2nd do., David Davis, Louth, \$3.

Best Cassimere Cloth, from merino wool, one piece, Barber Bros., Streetsville, \$7; 2nd do., Platt Hinman, Grafton, \$4.

Best Cloth, fullled, one piece, Barber Bros., Streetsville, \$7; 2nd do., Nathan Choate, Hope, \$4.

Best Cloth, broad, one piece, Barber, Bros., Streetsville, \$7.

Best Counterpanes, two, A. Ploethner, Preston, \$5; 2nd do., G. M. Davison, Markham, \$3.

Best Cordage and Twines, from Canadian flax or hemp, assortment of, Elliot & Hunt, Preston, \$10.

Best Check for horse collars, one piece, Mrs. Morgan, Etobicoke, \$6.

Best Drawers, factory made, woollen, six pairs, Armstrong & Anderson, Guelph, \$5.

Best Flannel, not factory made, one piece, Donald Clarke, Puslinch, \$5; 2nd do., Platt Hinman, Grafton, \$3.

Best Fur Caps and Gloves, Henry Ferdinand, Waterloo, \$5.

Best Fur Sleigh Robes, buffalo, wolf, and racoon, an assortment, Henry Ferdinand, Waterloo, \$15.

Best Gloves and Mitts, of any leather, an assortment, Henry Ferdinand, Waterloo, \$5; 2nd do., G. Richardson, Grafton, \$3.

Best Horse Blankets, two pairs, N. Britton, Markham, \$5.

Best Kersey, for horse clothing, one piece, Donald Clarke, Puslinch, \$5; 2nd do., John Moore, Etobicoke, \$3.

Best Oxford grey Cloth, one piece, Barber Bros., Streetsville, \$5.

Best Satinet, black, one piece, Barber Bros. Streetsville, \$6.

Best Satinet, mixed, one piece, Barber Bros., \$5.

Best Shawls, home made, Platt Hinman, Grafton, \$4; 2nd do., W. Withers, Stouffville, \$2.

Sheepskin Mats, dressed and coloured, an assortment, John Cooke, Toronto, \$6; 2nd do., Henry Ferdinand, Waterloo, \$4.

Best Shirts, factory made, three of each, woollen and angola, Armstrong & Anderson, Guelph, \$5.

Best Stockings and Socks, factory made, woollen, 3 pairs of each, Armstrong & Anderson, Guelph, \$4.

Best Stockings and Socks, factory-made, mixed woollen and cotton, three pairs of each, Armstrong & Anderson, Guelph, \$4.

Best Suit of Clothes of Canadian cloth, Mrs. E. Kinnan, Kingston, \$8.

Best Tweed, Winter, one piece, Barber Bros., Streetsville, \$6 and Diploma.

Best Tweed, Summer, one piece, Barber Bros., Streetsville, \$6; 2nd do., Wm. Withers, Stouffville, \$4.

Best Woollen Cloths, Tweeds, &c., an assortment, Barber Bros., Streetsville, \$10.

Best Woollen Shawls, Stockings, Drawers, Shirts, and Mits, an assortment, Armstrong & Anderson, Guelph, \$10; 2nd do., Donald Clark, Puslinch, \$6.

Best Yarn, white and dyed, 1 lb. of each, Mrs. Morgan, Etobicoke, \$3; 2nd do., Mrs. Harper, King, \$2.

Best Yarn, fleecy woollen, for knitting, one pound, Mrs. Morgan, Etobicoke, \$3.

Best Yarn, cotton, two pounds, Gordon & McKay, Toronto, \$3; 2nd do., J. Wright, Dundas, \$2.

Best Yarn, linen, two pounds, Elliott & Hunt, Preston, \$3; 2nd do., Mrs. C. Miller, Norval, \$2.

Best Linen Goods, six varieties, manufactured in Canada from Canadian-grown flax; each specimen containing not less than 12 yards, Elliott & Hunt, Preston, \$60; 2nd do., John Rea, Yarmouth, \$40.

**Extra Prizes.**

Wm. Young & Co., Galt, Paper Collars, \$2; John Richardson, Pelham, home-made Woollen and Cotton Flannel, \$2; Jas. W. Gale, Toronto, varieties of Woollen and Cotton Shirts, \$6, and Diploma; Taylor & Middleton, Toronto, Worsteds goods, \$2; Donald Clarke, Puslinch, a Vest, \$2; Joseph Wright, Dundas, Cotton twilled Calico, \$2; J. Reading, Toronto, Skirts and Corsets, \$4; D. S. & B. Adams, Toronto, Ties

and Scarfs, \$2; J. F. Williams, Niagara, Hearsce Plumes, \$2; Private P. Tarpey, 17th Regiment, a Quilt containing 2,341 pieces, \$10; Pringle & Co., Toronto, Seamless Saque, \$3.

The Judges report the Woollen Blankets, by Messrs. Slingby and Kitchen as "very superior," and the Assortment of Cordage and Twine, by Messrs. Elliott and Hunt of Preston, as a "very excellent assortment of superior quality;" also the Winter Tweed, by Messrs. Barber Bros., as "very superior."

### THE PRESENT NUMBER.

The delay in issuing the present number of the Journal has arisen from a desire to give a full and correct notice as possible of the Arts and Manufactures Department of the recent Provincial Exhibition; and also to enable us to publish a correct list of the prizes awarded in that Department. The early publishing of this list is the more desirable on account of the many errors in the list published by the Daily Journals. That such errors should be found in their report is not surprising, prepared as they are in the midst of the hurry and confusion of the Exhibition, and before the revision Committee have attended to the duty of correcting mistakes and oversights in the returns of prizes awarded.

### AGRICULTURAL ASSOCIATION, U. C.

#### The Annual Meeting.

The Annual Meeting of this Association was held on the morning of Friday, September 28th, at the large committee rooms on the Exhibition grounds, Toronto.

Besides the President and Members of the Board of Agriculture, and the Delegates from the various Agricultural and Horticultural Societies, there were also present the President and Vice-President, and several Members of the Board of Arts and Manufactures.

After reading of the minutes and other formal proceedings, the following office-bearers were elected for the ensuing year:

President . . . . . J. P. Wheler, Woburn.  
1st Vice-President. . . Thos. Stock, Waterdown.  
2nd " " . . . — Nimmo, Camden.  
Treasurer . . . . . R. L. Denison.

It was then resolved, that the Provincial Exhibition be next year held in the City of Kingston.

The Mayor and a Deputation from the Kingston City Council were present, and pledged the City to meet every necessary preparation for its accomodation.

A vote of thanks to the Treasurer Col. R. L. Denison, and to the Secretaries, Mr. H. C. Thomson, Sec. to the Board of Agriculture, and W. Edwards, Sec. of the Board of Arts and Manufactures were unanimously adopted, and the meeting adjourned.

## Selected Articles.

### THE PRESENT CRISIS.

The following article from the Woodstock *Baptist Freeman*, on the present crisis, is so well put, and contains truth so incontrovertible, that, although we seldom touch on matters of a public or political character, we feel justified in placing it upon record in the pages of this journal. We think that the spirit which appears to have animated the writer of the article here given may prompt our whole people to deeds of patriotism and daring, should our soil again be invaded by foes so unworthy and unprincipled as those who recently murdered our fellow citizens at Lime-Ridge:—

"It may be proper to remark, in passing, that our brethren in the United States excuse their strange hostility to our people upon the pretence that Canada was unfriendly to the North during the late civil war. We do not stop to argue the point as to whether the premises, if admitted, would justify the conclusion, but we flatly deny the truth of the premises, and call upon our irate neighbors to point to a single act of the Canadian Government or people which implied unfriendliness during the whole war. Was the invasion of their soil openly agitated in public meetings of our citizens? Were these meetings attended and addressed in virulent language by high public functionaries of Canada? Were preparations openly made for such invasion, by enlisting and drilling men, collecting military stores, arms &c. ? Or was the attempt ever made to relax our neutrality laws by Legislative action so as to give Government encouragement to murderous raids? If our friends can show that any of these unfriendly manifestations were made towards them by any class of the Canadian community, they will establish their point. But if, *as is the truth*, no unfriendly act was ever done, or unfriendly word officially spoken, by any of our authorities,—if no public meeting of Canadians was able to pass a single unfriendly resolution,—if their own rebellious citizens who had taken refuge among us were obliged to conduct their plotting with the utmost secrecy, to evade the constant watchfulness of our police,—if, when they succeeded in one instance, in accomplishing a raid into American territory, and perpetrated robbery and murder there, our authorities unprompted, instantly hunted them down, arrested all that could be found, stripped them of their ties, and delivered the raiders into the hands of the plunder and handed it over to the plundered par-law,—if we then, at our own expense, guarded the frontier so as to make another similar raid impossible; and above all, if the state of public feeling in Canada was such as to induce 30,000 of our young men to offer their lives to the cause of the North, emulating, and almost exceeding, the enthusiasm of the Americans themselves, then the charge of unfriendliness is groundless and their hatred is gratuitous, unprovoked, and,—ungrateful. But we let this pass. It is sufficient to show

that a powerful organization exists among American citizens, according to their own accounts, numbering 100,000 fighting men, organized and drilled, and fully provided with all the munitions of war, whose openly professed intention is to ravage our country, subvert our Government and overthrow our state; and that the state of public opinion in the United States is not such as to afford the least hope that any restraining influence will thereby be exerted upon their movements.

Now, this being so, the question returns: What is the duty—not of the Government, Provincial or Imperial, for this, it is not our province to discuss,—but of the christian people of Canada? Some reader will reply: To offer unceasing prayer to Almighty God for his merciful interposition in our behalf; and in this we, so far, most heartily concur. Nothing can be good or strong, without His blessing. We should pray—

1st. That God will mercifully open the eyes of that portion of the American people who are under this strange infatuation, and bring them to entertain towards their unoffending neighbors the sentiments of justice and truth, if not of generosity and brotherly concord, and effectually deliver them from the influence of those wicked and designing men who are leading them to their own ruin, and to the possible infliction of great suffering and mischief upon others. 2nd. That He will gird our rulers and governors with wisdom, courage and fortitude fitting the emergencies of the time; and 3rd. That He will imbue the entire Canadian people with an earnest christian patriotism, a true national—nay, brotherly—unity, which shall prepare them to stand together, if need be, in the breach of death, for the defence of country and home, and those beloved objects who make home precious to fathers and husbands and brothers.†

But prayer—the prayer of faith—supposes action; and no duty except under very exceptional circumstances, ends with prayer. Indeed, it is possible that in a time of imminent danger a man may spend too much time in prayer *per se*. At least one eminent leader seems to have been rebuked for praying too long. “Wherefore criest thou thus unto me? Speak to the people that they go forward.” Such was the answer of the Almighty himself to one who prayed to be delivered from danger by the Divine interposition alone. God will help him if we ask him; but we must, at the same time, ourselves be moving as he guides. Pray, then, devoutly; but at the same time be prepared for energetic action. 1st. Let every Canadian man and woman labour to promote the growth of the public sentiment of patriotism before alluded to. Frown upon the Canadian who speaks disparagingly of our country. Refuse to listen to the poltroon who tells you that Canada cannot be defended. The truth is, that no country with 3,000,000 of patriotic inhabitants, united and determined, can ever be conquered by a foreign foe. Ask Scotland and Switzerland how they, with their scanty population and limited resources, preserved their necks from the yoke of thralldom through ages of war and aggression? Or if you point to the mountain fortresses of those countries for a reply, then ask Holland, a country more exposed and less defenceless than Canada itself. Think well and speak well of your country. Teach all

under your influence to do the same. Parents, teachers, professors, and Christian ministers are “specially charged with this duty.” Sink for the time, every party name and question that shall the least interfere with this sentiment. Let us forget that we are English, Scotch, or Irish, Tory or Radical, Protestant or Catholic, and claim only that we are CANADIANS, prepared side by side, to stand or fall with our country. 2nd. The Government will undoubtedly supply suitable arms for the militia of all classes, as they shall be required. But there is a very large class of men, or rather several classes, may we say, of excellent noble men, who are not liable to serve in the militia. Some by reason of their position, official or professional, and others by reason of their age, or otherwise, are exempt. Now we hold that it is the duty of such, if they can afford it to arm themselves. Let every clergyman and minister of religion, every professor and teacher, and every office-holder and aged man whose physical constitution is not quite broken down, immediately supply himself with the best breech-loader that can be procured, and at once accustom himself to its use. He may never be required to use it in more serious work,—God grant that it may not, but even in that case the expense will not be in vain. His own sense of manhood and self-respect will have been elevated, and he will transmit the arm to his sons as a memorial of family patriotism in a trying crisis.

We are aware that among the classes last addressed, especially the clergy, there are many estimable men who have conscientious scruples about lawfulness of war in any case, and we sincerely respect these scruples. But we beg once more to remind them that it is not a war for which we are called upon to prepare, but an irruption of freebooters and robbers, whose origin and objects are not national but personal; who will wage war against your property and your families for the gratification of their lusts and passions. The question is, how should you receive them? Dare you, as Christian fathers, husbands and brothers, abandon to the wicked grasp of the spoiler the precious objects of your charge, without a death struggle in the defence? We trust not. We venture to hope that those classes, who, from their number, their position and their superior culture will be able to render eminent service in a time of trial will be found shoulder to shoulder with their fellow-countrymen whenever the danger arrives.

## THE METRIC SYSTEM.

(From Hunt's Merchant's Magazine.)

Modern commerce has encountered no greater obstacle to its progress than the system of weights, measures and moneys used in its prosecution. Not alone the nations of the world, but every petty principality and power, until recently had their own denominations and values differing greatly from one another, and only translatable through the aid of voluminous dictionaries compiled from elaborate comparisons. Such a condition of affairs might be tolerated in the primitive eras of nations, before travel and national interchanges of products became the great business of the human race; but

in the present era, when the railroad and steamship carry passengers and freight with the swallow's pace, and when the commingling of nations makes the world as a single brotherhood, something more simple and universal in its functions is demanded, which the denizens of each and every nation, however foreign to each other in language, can easily comprehend. The great want has been, and still continues in a measure to be a universal system, with a nomenclature, founded on the ancient Greek and Latin languages in universal use. The adoption of such a system was one of the first acts of the French Revolutionary government, which in 1799 proclaimed the *Système Métrique*. It has since been adopted either wholly or partially, and its use become permissive or obligatory in almost every civilized country. We ourselves have for many years used it in scientific processes, and are now about to bring it into general use. A bill to this effect is before Congress, and has already been sanctioned by the Representatives; and there appears to be little doubt but that the bill will finally become a law, and the system in a short time be popularized throughout the Union. The change demanded by the new system will come easier to ourselves than to nations wholly accustomed to multiply and divide by the binary process. We have learned the decimal mode of proceeding from our own money system, and hence to carry its application to weights and measures will soon become familiar. Otherwise than this, the change contemplated by the present law is without complexity, being simply the substitution of one unit of value for another. What follows will explain the whole subject.

#### Harmony of the French System.

Though decimal weights and measures will be new to this country, they are not new to the world. They originated in France three quarters of a century ago, where they have been fully tested in the crucible of commerce; and the system there adopted has been proved to be the best that is possible for man, aided by science, to devise. In France it has had the best trial it is possible that it could have; for it is only in a country where the monetary and metrical systems are both decimalized that it could be thoroughly tested. When the United States created its decimal currency, and left its weights and measures unaltered, it did not even carry out a half measure of reform. Sterne's proverbial dictum, that "they do these things better in France" was never a greater truism than in the matter of her change to a decimal system. She did not pull down and rebuild the half of an edifice, and present a structure, one half of which did not accord with the other, but tore down the entire of the old fabric, and erected a new one that harmonized in all its parts.

#### The advantage of adopting the French System.

It is the French system of weights and measures that we are about to introduce. By adopting its units, which are founded on scientific data, there is no placing an additional cog in the wheels of commerce, which would undoubtedly be the case if a new system were introduced with other units, although that system were a decimal one.

It is evident that the French system must, in the course of time, become universal, and the sooner

we thoroughly adopt it—that is, make its use compulsory—the sooner we shall place ourselves on the smooth road upon which all nations must eventually travel. The nomenclature, too, being derived from the Greek and Latin, renders it applicable to every modern tongue, and thus prevents the necessity of each country drawing from its own lingual store names for new weights and measures which would not be understood beyond its boundaries. The advantage in commercial transactions of a universal system with a universal nomenclature is obvious.

#### The Origin of the Decimal System.

The history of the inception and introduction of the metric system is a matter of much interest. It imparts to us a knowledge of the substantial foundation upon which it rests, and the care which was bestowed to arrive at a system in strict accordance with the laws of science. We have no space, however, to enter into a detailed account of the difficulties that beset the path of those who were engaged in reducing the theory into practice; but when we state that the requisite surveys and experiments were carried on in the most exciting period of French history, the result proves how successfully earnest and intelligent men are able to overcome, what to others would be insurmountable obstacles. Their labours began a year or two before the commencement of the revolutionary struggle, and did not terminate until the last year of the century.

The ancient French system of weights and measures presented no uniformity: there was no relation between the *pie*, used as the unit of the measure of length, and the *liore*, as that of weight; and even although those measures bore the same denominations in all provinces, they were very different in their proportions in particular districts—the diversity being, to use the epithet of Delambre, scandalous. Local consumers did not feel the whole disadvantage which arose, but merchants often experienced great difficulties in converting to their own local standard the qualities expressed according to another rule.

One of the first objects which engaged the attention of the general States in 1788, was to find a remedy for this defect. It was then agreed that some principle should be established, on which a new system should be founded. It was desirable to find a natural and invariable standard; and it may be observed that mankind, in all ages, have been endeavoring to obtain some such result, though they may have proceeded without accurate scientific knowledge. Without science it is impossible to find an invariable standard in nature; for there is such infinite variety in the individual character of her productions that no portions of animal or vegetable matter can be found of equal or unchanging dimensions. It was therefore the object of the French to establish, "as the fundamental unity of all measures, a type taken from nature itself, a type as unchangeable as the globe upon which we dwell, to prepare a metrical system, of which all the parts should be intimately connected, and of which the multiplies and subdivisions follow a natural progression, which would be simple, easy to comprehend, and worthy of the enlightened age in which they lived."

**The unit decided upon.**

The Academie des Sciences was first requested to determine the length of a pendulum, vibrating seconds according to given rules, under certain circumstances. But this was objected to, because it was thought that the result, depending upon the weather and arbitrary division of time, was not susceptible of the requisite accuracy. It was then agreed to adopt the ten millionth part of the fourth part of the meridian, or of the quadrant comprised between the Equator and the North Pole, for the unity of this measure of length, and to derive all others from this standard.

**Principles of the Metrical System.**

It was then proposed that the new system should be founded upon the following principles:

1. That all weights and measures should be reduced to one *uniform* standard of linear measure.
2. That this standard should be an aliquot part of the circumference of the globe.
3. That the unit of linear measure applied to matter in its three modes of extension, length, breadth, and thickness, should be the standard of all measures of length, surface, and solidity.
4. That the cubic contents of the linear measure in distilled water, at the temperature of its greater contraction, should furnish at once the standard weight and measure of capacity.
5. That for everything susceptible of being measured or weighed, there should be only one measure of length, one weight, one measure of contents, with their multiples and subdivisions exclusively in decimal proportions.
6. That the whole system should be equally suitable for the use of all mankind.
7. That every weight and every measure should be designated by an appropriate, significant, characteristic name, applied exclusively to itself.

Thus it will be observed, according to this scheme, the unit of linear measure is the basis of the whole system. For the purpose of obtaining the value of the unit, it was resolved that an arc of the meridian should be actually measured. M. M. Mechain and Delambre were therefore appointed to ascertain, with the utmost precision, the length of the arc, comprised between Dunkirk, and Rhodes, in France, a distance of nearly 550,009 *toises* or about 570 miles. M. Mechain died in Spain from excessive fatigue in attempting to extend his labors to Barcelona, a distance much further than had been required of him. The result of the operations in which these savans were engaged, was, that a quadrant of the meridian lying between the Equator and the North Pole measured 5,130,470 *toises*, and that the ten-millionth part of this quantity, which was to form the standard unit, was therefore equal to 443,296 *lignes*.

**The new Nomenclature.**

The unit of the measure of length, thus ascertained, was discriminated a *metre*; and being established as the legal standard upon which all other weights and measures were to be predicated, the Academy proceeded to devise a new nomenclature. The *metre* is almost exactly the length of the seconds' pendulum at Paris, or about 39½ English inches.

The unit of measure of capacity is a cube, whose side is one-tenth of a metre. It is called a *litre*, and is equal to about 2½ pints.

The unit of weights is the *gramme*. It is the weight in *vacuo* of a quantity of pure water, at its maximum of density, that shall exactly fill a cubical vessel, each side of which is one-hundredth part of the metre. It is equivalent to about 15½ grains, Troy.

In land measures the unit called the *are*, is a square surface, each of whose sides is ten metres. It is nearly equal to four perches.

The unit of measure for fire-wood denominated the *stere*, is a cubic metre, comprising about 35½ English cubic feet, or somewhat more than one-fourth of a cord.

In order to express the decimal proportions, the following vocabulary of names has been adopted:

**For Multipliers:**

- the word Deca—prefixed, signifies... 10 times;
- the word Hecto—prefixed, sig.... 100 times;
- the word Kilo—prefixed, sig.... 1,000 times;
- the word Myria—prefixed, sig. ... 10,000 times;

**On the contrary, for Divisors:**

- the word Deci—expresses the .... 10th part;
- the word Centi—expresses the .... 100th part;
- the word Milli—expresses the .... 1,000th part;

It may assist the memory to observe that the terms for multipliers are Greek, and those for divisors Latin. Thus, *Deca-meter* means ten metres, *Deci-meter* the tenth part of a metre; *Hecto-meter* one hundred metres, *Centi-meter* the hundredth part of a metre; and so on for the rest.

"The theory of this nomenclature," it is justly remarked, "is perfectly simple and beautiful. Twelve new words, five of which denote the things, and seven the numbers, include the whole system of metrology; give distinct and significant names to every weight and measure, multiple, and subdivision of the whole system; discard the worst of all the sources of error and confusion in weights and measures, the application of the same name to different things, and keep constantly present to the mind the principle of decimal arithmetic, which combines all the weights and measures, the proportion of each weight and measure, with all its multiples and divisions, and the chain of uniformity which connects together the profoundest researches of science with the most accomplished labors of art, and the daily occupations and wants of domestic life, in all classes and conditions of Society."

Such was the principle of the new system proposed by the Academy of Sciences in France, and the adoption of which, in that country, was enjoined by a law enacted December 8, 1799, and which is now in a fair way of being introduced into the United States.

**INFECTING MATTER.**

Mr. W. Crookes, F. R. S., in his report to Her Majesty's Commissioners on the cattle disease says:—

"There are weighty reasons for deciding that, the infecting matter is neither a gas nor even a volatile liquid. The almost infinite attenuation which a gas undergoes, owing to its rapid diffusion into the atmosphere, would render its supposed noxious influence imperceptible a few yards from the focus of infection. Moreover, the infection is capable of being carried considerable distances in

clothing or running water, and in a variety of ways incompatible with the behavior of gases. For these reasons, and many others unnecessary to adduce here, it seems clear that the disease must be communicated by the agency of solid, non-volatile particles.

"The specific disease-producing particle must, moreover, be organized, and possess vitality; they must partake of the nature of virus rather than of poison. (The words virus and poison are generally regarded as synonymous. It would be more convenient, and would tend to promote accuracy of thought, were the distinction here made generally adopted.) No poison yet known to chemists can approach, even in a faint degree, the tremendous energy of the active agent of infectious diseases. A poison may be organic, but it is not organized. It may kill with far greater rapidity than the virus of infection, but, unlike this virus, it cannot multiply itself in the animal economy to such an extent as to endow within a few hours every portion of its juices with the power of producing similar results. A virus, on the contrary, renders the liquids of an infected animal as virulent as the original germ. Strychnine may be regarded, as the type of a poison, and vaccine matter as the type of a virus.

"Many considerations tend to show that the virus of cattle plague is a body similar to vaccine lymph, and consists of germinal matter, or living cells, possessing physiological individuality, which, if not exposed to extremes of heat, cold, or dryness, are capable of preserving their activity for a certain time outside the living organism, of adhering to material object, and of being carried from one place to another by currents of air; each, when introduced into the blood, requires a certain time (known as the period of incubation) during which, the septic germs devolve and multiply, until they have so far poisoned the blood that the ordinary symptoms of disease become manifest.

"The blood poisoning thus set up may legitimately be called 'fermentation;' it is a decomposition caused by the act of nutrition of the living cell, whereby it reproduces in incalculable numbers the specific septic germs which have given it birth. These gradually infest the blood and other animal liquids, and, as the disease progresses, are discharged from the skin, throat, glands, etc., the breath, perspiration, and excreta of the animals forming vehicles for the distribution of the virus. By 'living' cells, is not not meant living, in the sense in which an animal, or even a low form of infusoria, lives, but living as a seed, or as vaccine matter, even when dried, may be living, inasmuch as it still possesses reproductive vitality.

"It is by no means certain that the multiplication of the individual cells is the immediate cause of the blood poisoning. The analogy of the action of virus on the blood, to that of yeast on sugar, renders it more probable that this is not the fact. In the case of the best-known ferment—yeast—its cells multiply by feeding upon the sugar in the liquid; alcohol and carbonic acid being their excretions. It is therefore probable that during the multiplication of the virus cells, they, in a similar manner, impoverish and weaken the blood, by feeding upon some element in it, while at the same time they excrete a poison to which the symptoms of the disease may be immediately due."

## CARBOLIC ACID AS A DISINFECTANT.

Carbolic acid has lately come to be a great favourite as a disinfectant. Where its virtues are best known it is more relied on than anything else as a preventive of cholera. There are those who think that if it were liberally used wherever there is unhealthy organic decomposition, miasmatic diseases would soon become unknown. Our very efficient board of Health, we observe, have added it to their list of disinfectants, and are using it on a large scale. At the next cholera season we predict that it will be better known and be more valued than any other disinfectant.

The reasons why carbolic acid is such an admirable disinfectant are easily to be understood. Miasmatic matter, and almost everything contained in the air which is offensive to the senses, are the products of the fermentation or putrefaction of organic matter. Now, it has been found that carbolic acid is the sovereign and never-failing anti-putrescent and antiseptic. The power of carbolic acid is wonderful for its promptness and its persistence. Putrefaction can neither go on nor be commenced in its presence; it preserves everything *in statu quo*. It is certain that several organic poisons act like a ferment, or are matter in the state of decomposition. Mr. Crookes has shown that the virus of serpents and of contagious diseases belong to the same category. In all these cases, wherever carbolic acid can be applied, it may prove to be a specific.

Chloride of lime acts very promptly as a deodorizer of the air, and to this fact it owes its high reputation. It destroys noxious matter by bringing about a chemical change in it. It enters into chemical union with some part of it, and no longer exists in a state to do more useful work; it is exhausted in doing its work; it is wholly used up. Moreover, chlorine acts by reason of its affinity for hydrogen; and as hydrogen is an element of innocuous matter, it wastes much of its energy where it is not needed. It deodorizes promptly, but where is the evidence that the virus has a foul odor? How do we know that anything beyond the odor is destroyed?

Carbolic acid, on the other hand, goes to the root of the matter. It acts as a preventive. It destroys our enemy in the egg. No noxious effluvia can come from the matter with which it is in contact. It mixes kindly with everything. A very remarkable fact about it is, that in doing its work, there is no chemical change. It remains always free carbolic acid, and the matter with which it is surrounded continues the same as at the first instant of contact. Thus the carbolic acid is never consumed, and may continue forever its office of restraining the demon.

Two simple experiments illustrate the peculiarities of chlorine and carbolic acid. Bring a piece of putrid meat into an atmosphere of chlorine and it comes out sweet. But wait. Observe that it is only the fetid atmosphere about the meat which was effected; let this be blown away, and a new one takes its place. Let the meat be now dipped in a weak solution of carbolic acid and exposed to a current of air. The foul odor is soon blown away, and the meat may continue sweet forever.

Carbolic acid is cheap, and is applicable under



circumstances where anything else would be impracticable or objectionable. Thus it may be dissolved in the water used in sprinkling the streets, and relieve us from that peculiar city effluvium which is so noticeable and sickening to those who have just come out from the pure air of the country. It may be used in the washing of the clothing, bedding, etc., of infected persons. It is perfectly safe to be used in the family.—*Scientific American*.

## Useful Receipts.

### Millstone Cement.

A correspondent of the *Scientific American* gives the following:—Take burr block and powder it fine, and take equal parts of powdered burr block, alum and borax, melt and pour in the holes; this is next to the burr in hardness. But I prefer not to put anything in at all; it does not do any good, it will not grind anything, the holes do not hurt anything, as they fill up with flour while grinding. I have had great experience in the milling business. We are running three mills out of seven in this city, I built the first mill in this city some thirty years ago.

Another correspondent of the same journal says;—"I used the following some twenty-five years since, in my steam mill on the Ohio River, viz: Take about equal parts of common alum, pulverized, and pieces of broken china, also pulverized; put the alum in an iron vessel over a hot fire until it becomes a liquid, then stir in the powdered china, or so much of it as will still leave the combined mass semi-liquid, then, while yet hot, pour or plaster it into the cavity; it will soon cool, and become as hard and immovable as any part of the mill stone.

### New Solvents of Gold.

M. Nickles show that iodine under pressure, or even under the influence of light, will dissolve gold leaf. The sesqui-iodide and sesqui-bromide of iron also act as solvents.

### Transparent Pomade.

Dissolve ten grains of Chinese gelatin by boiling in one ounce of distilled water, and remove the impurities swimming on the surface; mix this solution with four ounces of warm glycerin perfumed by five drops of oil of bergamot, or three drops of the oil of roses, and colored by extract of rhatany. The mixture, when cold, should be tried by rubbing between the hands whether it will melt or not. If it should be too stiff, then warm it up in a water bath, and add to the fluid compound a small quantity of glycerin and let it cool; but if it proves to be too soft, add one to two grains of gelatin, previously dissolved in water. Heat the pomade to a temperature of 40 deg. Cent., and pour it into glass vials, where it will become stiff and transparent.

### Cement to fill cracks in old Furniture.

Moisten a piece of recently burnt lime with enough water to make it fall into powder; mix one part of the slaked lime with two parts of rye flour, and a sufficient quantity of boiled linseed oil to form it into a thick plastic mass.

## Photography.

### Pine's Toning Process.

A correspondent of *Humphrey's Journal* has the following:—

Having had numerous inquiries referring to the bright and clear tone of my prints, and as many suppose I use a peculiar toning bath, I send you herewith the secret of their brightness, which is owing to the prints being thoroughly freed from the nitrate of silver before toning. To accomplish this object I have recourse to the following method:

I take the prints just as they come from the printing frames, and immerse them in a solution composed of water, one pailful, common salt, one ounce. The prints are immediately covered with a white powder (chloride of silver), which gives them a foggy appearance, I then lay them, one at a time, on a glass, face upward, and remove the powder by means of cotton flannel, wrapped round a wooden roller, a little longer than the width of the print. By passing this roller over the print once, with moderate pressure, the chloride of silver is entirely removed, and the print looks bright and clean. The print is then placed in a dish of clean water, and the operation is continued until all the prints are in the second dish, from which they are placed in the toning bath. I can wash thoroughly five hundred 6½ by 8½ prints in an hour without difficulty.

The advantages of this plan of washing are—

1. Three-quarters of the silver used in printing can be saved, as all of it that is washed off remains in the first dish.

2. The prints are washed thoroughly, which cannot be done by placing them in running water.

3. The prints can be toned with one-third less gold than was formerly used.

4. The prints, being clean, tone quickly, and do not change color in the fixing bath.

5. The fixing is accomplished in less time, and is more thorough, than when the prints are imperfectly washed.

6. Great economy of water: six pailfuls being ample in which to wash five hundred 6½ by 8½ prints.

7. Meakiness in the prints is entirely avoided.

I use an 80-grain silver bath, and float the paper one minute in summer, and two minutes in winter, and tone with a simple solution of chloride of gold and water, neutralized with chalk. I fix the prints in a bath composed of water, 16 ounces, hypo. soda, 4 ounces. If the hypo. soda be acid, I neutralize the solution with carb. soda. Some may suppose the surface of the paper is injured by rubbing it with the flannel, but such is not the case.

### Card Groups and new style of Carte-de-Visite.

Card groups now much in favor at Vienna, are as follows:—It is a card of the ordinary dimensions, containing a group of seven persons, distributed lengthwise on the card. It represents the interior of a drawing room, a panelled wall, chimney piece etc., forming the background. Two of the figures are seated at a grand piano, playing a duett, while a third one turns over the music; a fourth, standing near, leaning on the chimney piece, apparently

listens to the music; a fifth sits with an embroidery frame on her lap, engaged at work; another sits before a writing desk, or Davenport, writing a letter; while another stands by with a letter in her hand, apparently in conversation with the last. The scene is simple and domestic; a family group at home. The grouping is admirably managed, the photography exquisitely perfect and delicate, at once excellent in definition, light and shade and pictorial effect.

Another new style is a full-length *carte de visite* portrait of a gentleman, front view, and on the back of the card is pasted the portrait of the same person, in the same position but taken from his back, and this being reflected in a little piece of looking-glass placed in front of the back picture, you see the whole of the gentleman at one glance, both front and back view.

**A New Intensifying and Toning Agent.**

We have to bring a new agent under the attention of our readers, which appears to possess specific advantages which render it well worthy of attention, inasmuch as it is easy to use, very efficient as an intensifier for negatives, and is also a valuable toning agent for transparencies. Dr. Towler tried some successful experiments, and published a more definite formula, recommending a ten-grain solution of ferridcyanide of potassium, and a ten-grain solution of sulphate of uranium, to be mixed in equal proportions. Again we heard of experiments being tried with signal failure.

We have, however, during the last week or two, tried a series of experiments with the most satisfactory results, and we can now, not only explain how these may be secured, but also the cause of failure in the hands of some of those who have unsuccessfully tried the experiment. We will first state the formula and mode of working. Take—

Ferridcyanide of potassium ..... 10 grains  
 Water ..... 1 ounce

Dissolve and mix with a solution of—

Persulphate of uranium ..... 10 grains  
 Water ..... 1 ounce

This mixture is a clear solution of a deep red brown; and poured over a finished and washed negative, it at once changes the deposit (which, after simple iron development, is generally of a grayish color) into a rich non-actinic chocolate brown tint, and, if its action be continued, into a purple brown or warm black. This is effected without risk of stains or disadvantages of any kind that we have discovered. There is a remarkable similarity in color to that produced with Schlippe's salt, but the operation is much simpler, as the negative requires no preparation, and no subsequent treatment beyond washing. The first plate to which we applied the solution was an old glass positive, of bright silvery color, which had been taken many years. A bright scarlet color was at once communicated to the whites, which, on drying, became a reddish brown, but very non-actinic in character. Applied to a negative of somewhat insufficient intensity, the tint at once produced was a rich chocolate brown, both by reflected and transmitted light, rendering the negative more non-actinic in color, without sensibly increasing the deposit, and thus securing an important con-

dition of delicacy as well as intensity, the requisite printing quality being obtained without piling up deposit and risking coarseness.

As a toning agent for transparencies nothing could be better. The rich, deep, warm brown at once assumed, or the deeper purple brown, approaching black produced by a continued application appears to us all that can be desired in collodion transparencies for any purpose. The freedom from risk or stain or injury of any kind, so far as our experience has gone, is most valuable. The solution may, if desired, be made stronger, and its deepest effect produced more rapidly if desired; but it appears to us that the strength we have indicated is the best for practical purposes. The solution may also be used over and over again, until its efficacy is exhausted.—*American Paper.*

**Photographic Engraving.**

The great advantage of the process for obtaining photographs on copper plates, which we described last week, consists in the circumstance that photographs so obtained may be readily "bitten in," so as to enable the plate to be printed from just as though they were ordinary engraved plates—the result, however, being a far more perfect reproduction of the original photographic picture than could be obtained by the most skilful mechanical engraving. When it is desired to etch a photographic picture obtained on a copper plate by this process, the plate, after having been dried must be varnished on the back and sides, but not on the face, must have all the black dust composing the shadows of the pictures carefully removed, must next be well washed under a strong jet of water, and must then, without first drying, be plunged into the liquid to be employed as a mordant. A suitable mordant is one consisting of one part of nitric acid, two parts of a saturated solution of bichromate of potash, and five parts of water. Where more convenient, the nitric acid may be replaced by sulphuric acid. The quantity of this mordant used in the first instance should be simply enough to completely cover the plate, but from time to time, as the liquid turns blue, more should be added, the action of the mordant being continued for a whole day, or for even longer, according to the temperature. The mordant acts only on the bare copper, and does not effect those parts of the plate which are covered by silver, so that the result is an incised engraving fit for printing from. If, instead of treating the plate as thus described, the black dust composing the dark parts of the original picture be not rubbed off, and the mordant used consist of iodine associated with either bichromate of potash or nitric acid, an engraving in relief will be obtained, the iodine acting only on the parts of the plate on which there is a deposit of silver, and from this engraving in relief a reversed proof, suitable for printing from, may be procured by the galvano-plastic process.

**On the Artistic Colouring of Photographic Portraits.**

(From the "British Journal of Photography.")

So difficult is the task of training a good colorist, that even the accomplished artist feels his inability in endeavouring to impart the information

necessary to those he is wont to train in the knowledge whereby he is enabled to produce almost inimitable results. With the best intention he fails, feeling he cannot impart that which nature almost intuitively bestows, and he discovers that there is something more required than pigments, palette, and brush in the making of an artist.

But when the colorist, solemnly imbued with the truth of the photograph, and watching the fine management of its monochrome, from its high lights to its deepest shadows, can translate the same with a keen desire to imitate its inimitably delicate gradations into color; then indeed does the photograph as rendered on the ground glass of the camera serve as the true guide to the miniature colorist, and the result is a beautiful conjunction of nature and art to produce a faithful resemblance of the human face. Of course the taste of the artist will dictate to him to soften some of the harder lines rendered in the proof by the peculiar color of the original, or the furrows which time indents on the forehead, and which, by the concentration of the lines, may really appear deeper in the photograph than in the original.

Without attempting to go deeply in the philosophy of color, analytically or synthetically, it may not be out of place to give, however slight, an idea of how to proceed in coloring a photograph.

It is indispensable that you wash the proof well with a sponge, or, better, and even at your command, sweep your tongue across it in order to remove any traces of grease or starch. As far as my experience goes the later method is preferable. In rubbing down the colors on the palette give all attention to the manner in which it is softened with the gum and water added. If you rub with careless quickness the colors are rendered useless, owing to the numerous air bells that rise, which, when applied to the surface of the picture, give it a coarse, inartistic, and anything but a pleasing aspect.

To color a good, clean print, you must, in the first place wash on the face, use as much gum as will bring it nearly, although not quite, to the same gloss as the albumen surface; this wash to be composed of—for a person of ordinary complexion—a combination of rose madder and Indian yellow, or Venetian red alone. With these colors judiciously applied you can produce any complexion from the highest glow of health to the most sallow; the shadows to be warm, and in every case glazed even more than the albumen surface. Sepia, neutral tint, burnt umber, chrome yellow, and ivory black, if properly used, will give the blooming, graceful curls of the gentle queen of hearts, or the seared locks of the tottering dame of seventy, that life-like brilliancy which is characteristic of health or decay.

Should the photograph be clear and well-defined, for draperies and carpets (the coloring of which should ever be subservient to the figure), use transparent, but if the picture be deficient from underdevelopment, use *opaque*. Of transparent colors for such purposes use the following:—Crimson lake and burnt sienna, Prussian blue and Indian yellow. Chrome yellow and Prussian blue also make an excellent wash for draperies, although not purely transparent.

For backgrounds, which should ever be made

to softly recede from the figure, the following colors may be used with much purpose:—Cobalt blue, and a little Chinese white, which gives a good effect and altogether a pleasing result, vignetting it to your own taste with sepia or other browns. By way of finish, or to relieve an otherwise poor production, it is sometimes necessary to make what is termed an introduction; that is, a side opening in the background, where a neat landscape may be lightly sketched and colored, comprised of water, land, and sky, or a bit of woodland. These sometimes give a freshness to an otherwise dull picture, or serve to exclude some of those hideous backgrounds so much displayed in *cartes* generally. But in putting in draperies, carpets, plain or pictorial backgrounds, let them ever be subdued, and in quiet harmony with the figure, the head of which should ever be the principal attraction for the eye.

With these rather incomplete remarks I hope you will feel satisfied, as I assure you my *forte* does not lie in writing papers, nor do I possess the capacity to express in words that which I can render in color. The specimens I now show will, in some measure, serve as an apology, and embody my ideas of what artistic coloring as applied to photographs ought to be.

SCOTT ALEXANDER.

## Miscellaneous.

### Obtaining Soda from Common Salt,

Mr. Welden of England has taken out a patent for a process for the above purpose, as follows:—

The new process consists in placing within a vessel capable of resisting the required pressure an equivalent of common salt, and another of carbonate of magnesia, with a small quantity of water, and then pumping into the vessel the carbonic acid formed by causing atmospheric air to traverse coal in a state of ignition. The carbonate thus becomes bicarbonate of magnesia, which dissolves in the water, and then decomposes the chloride of sodium, chloride of magnesium, which remains in solution, and bicarbonate of soda, which precipitates, being formed. The whole process lasts but a quarter of an hour at most, and the cost is only that of the coal used in forming the carbonic acid. A moderate heat drives off the second atom of carbonic acid from the bicarbonate of soda, changing it into carbonate; and the magnesia may be recovered from the chloride by evaporating the solution containing it to dryness, and raising the residue to a temperature below redness.

### Necrosis Produced by Tobacco.

A case has recently occurred to Mr. Paget (*Lancet*) in which death of a portion of the bone of the lower jaw was occasioned by the introduction of the oil of tobacco into the cavity of a carious tooth, for the purpose of curing the toothache. The patient was an Italian sailor who used the oil from the stem of his pipe. Mr. Paget, in remarking upon the case after having removed several sequestra, said:—"The case well illustrates a source of danger which is not generally recognized. The practice

of smoking is very wide-spread, and foul pipes and carious teeth are very common. Every smoker of a pipe has been disgusted now and then by sucking into his mouth a few drops of the highly pungent and nauseous product of the combustion of tobacco. In the action of smoking the tip of the tongue ordinarily receives this deleterious fluid, and is very much blistered in consequence. Were it not for the tongue one can readily imagine that hollow teeth would often receive this fluid: with what amount of risk the case before us well shows. It is well known that, for phosphorus to excite the inflammatory action which so-often affects the lucifer-match workers, the fumes must be applied to a raw vascular surface in immediate connection with the nutrition of bone. This almost always happens through the medium of a carious tooth. There is no reason to suppose that tobacco oil would set up inflammation except under similar circumstances. It is, however, very probable that some cases of acute necrosis of the lower jaw of obscure origin may have really originated from the accidental poisoning of the tooth-pulp by this liquid, and the possibility of this source of disease, should be borne in mind.—*Medical Record.*

#### Boys Using Tobacco.

A strong and sensible writer says a good sharp thing, and a true one, too, for boys who use tobacco.

It has utterly spoiled and utterly ruined thousands of boys. It tends to softening and weakening of the bones, and it greatly injures the brain, the spinal marrow, and the whole nervous fluid.

A boy who smokes early and frequently, or in any way, uses large quantities of tobacco, is never known to make a man of much energy, and generally lacks muscular and physical as well as mental power. We would particularly warn boys who want to be anything in the world to shun tobacco as a most baneful poison. It injures the teeth.

It produces an unhealthy state of the throat and lungs, hurts the stomach, and blasts the brain and nerve.

#### The Production of Timber.

Bayard Taylor, in a recent letter from Kansas, says that hundreds of acres of prairie, which have been protected from fires by contiguous cultivated fields, are overgrown with hickory and oak trees from four to six feet high. Where land is tolerably well watered and undisturbed, especially if in vicinity of wooded country, it will give support to what is commonly called spontaneous growth of timber. The character of the growth depends mainly upon the quality of the soil. The seed may have remained for years in the soil, possessing a latent vitality, which awaits only favorable conditions for its development. Poor soils seem first to favor the pine, and this in turn gives place to the more rapid-growing deciduous trees, until the chesnut and the oak find fitting support and conditions for their growth and development. But in a country like this, where the demand for timber for manufacturing and building purposes threatens to rob us of our forests, it may not be well to rely wholly upon the unaided forces of nature for a supply. The resolution introduced into Congress to offer incentives to the planting of our immense

prairies with trees, we regard as a timely suggestion. The great drawback to the settlement of those vast fertile plains is the absence of wood and an unfailing supply of water. These secured, and our prairies will be selected in preference to localities less favorable to agricultural pursuits, but which furnish wood and water in profusion.

Wherever there are forests there will be water, and the last is an indispensable requisite to human habitation. A section of country unprovided with elevated points as gatherers of the moisture of the clouds, must have a clothing of forest or retain the rains, which, on a naked plain, alternate periods of extreme drought with seasons of superabundant moisture.—*Scientific American.*

#### An "Aerial" Railway.

An elevated railway is authorized by the common council of the city of New York, to be constructed on each side of Greenwich Street and Ninth Avenue, from the Battery to and across Harlem River. It is thus described by the *American Artisan*:—

*The Superstructure.*—This will consist of a series of wrought iron columns about one foot in diameter and fourteen feet high above the level of the sidewalk. They will be firmly secured in large blocks of stone or masonry beneath the level of the street. The track will be supported on the upper ends of the posts, and will be open between the rails except the guides for the propelling rope, and a latticed iron frame to bind all together. To prevent oscillation a second row of pillars will be set at long intervals next to the buildings, and their ends braced to the main track for its lateral support. The cross-streets will be spanned with ornamental bridges of steel trestle-work, which will combine both beauty and safety.

*The Motive Power.*—This will be supplied by engines of thirty-horse power, placed in vaults beneath the surface of the street at intervals of half a mile. Attached to the engines will be a number of large drums, over which will revolve an endless wire rope, which, passing up through the hollow iron pillars to the level of the track, will extend between the rails for a distance of a quarter of a mile each way from the engine, and will return in a pipe placed beneath the pavement.

*The Cars.*—These are to be of a peculiar pattern. The body will hang between two four wheeled trucks for the purpose of bringing it close to the track; and by this means all danger from the breaking of a single axle or wheel will be avoided. By moving a lever the conductor will be able to stop or start his car at any point on the road.

*Stations.*—These will be placed at a distance of about five blocks from each other; and for waiting-rooms a portion of the second story of a building adjoining the track will be hired, and passengers will be able to ascend and descend by stairways inside the block.

[Since the above was in type, we learn that the mayor of New York has vetoed the ordinance on account of doubts as to its legality, and insufficiency of restrictions on the company.—*Ed. J.*]