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## THE TRADER.

TORONTO, ONTARIO, AUG., 1882

Sent free to every Jeweler and Hardware Merchant in the Dominion of Canada.

## Advertising Rates.

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THE TRADER PUBLISHING CO.,

13 Adelaide Street East, Toronto.

## SPECIAL NOTICE.

To ensure insertion, changes or new advertisements must be sent to the office not later than the 27th of each month.

## Editorial.

## TRADE PROSPECTS.

We are glad to learn from the various sections of the country, that the prospects of an average crop will be more than realized, and that from the present indications the harvest of 1882 will be even more abundant than that of last year. This is cheering information, because depending as we do mainly upon our agricultural resources, it insures to the country at least another year of prosperity. An abundant harvest means to Canada wealth and prosperity, because, it puts the farmer in a position to pay for what he buys, it enables the general dealer to square up with the wholesale merchant, and it also enables the importer to meet his engagements with the foreign manufacturer, from whom he obtains his goods. Good crops and prices are the keystone of our national prosperity, and when we come to sift the whole matter down to first cause, we shall find that after all the farming population are the mainstay of the country, and it depends almost entirely upon their condition whether trade is prosperous or adverse. Those who live in cities are often apt to underrate the status of the farmer in the commercial economy of the country, but as a matter of fact, the storekeepers and manufacturers spring into existence almost entirely in order to supply the farmers' wants, and when this class becomes too numerous to do

this economically, some of them are bound to go to the wall for want of something to do. This being the case, it is of the utmost importance to our commercial interests that our farmers should be prosperous, because poor crops through them, means disaster to the whole mercantile community. For these reasons we are glad to be able again to chronicle the fact that our crop prospects are above the average, and give every sign of an abundant harvest. Our merchants throughout the country may therefore look forward to a very busy time this fall, and may pretty safely calculate on a large and paying trade. With this in view, they should now begin to make preparations by getting their stock in good shape, jobbing off their old lines and making way for the novelties that are sure to be put upon the market. A word to the wise is sufficient, and we trust that all our friends will be found ready to take advantage of the increased trade that is sure to follow an abundant harvest.

## ABSCONDING DEBTORS.

Although a certain proportion of people in business are bound to fail, and that, in spite of their utmost endeavours to prevent it, it is no reason why others who might command success were they so disposed, should deliberately lay themselves out to "come to grief" and not only cheat their creditors but forever ruin their own reputation.

It is a lamentable fact however that such is the case, and that traders are to be found (rarely we are happy to say) who will thus by deliberately swindling their creditors make their name stink in the nostrils of all honest men. As a rule creditors have a good deal of sympathy and are always ready to help an insolvent who through misfortune or a combination of circumstances beyond his own control, has been forced to succumb to the pressure, but for the debtor who deliberately lays his plans to cheat his creditors and enrich himself at their expense, there can be nothing too severe and he should be punished if possible to the full extent of the law. An honest man, although an insolvent, while he may not like to have to ask the leniency of his creditors, has or ought to have the courage to meet them face to face and state his case and ask their sympathy and assistance, and as we have said above this is only in exceptional instances where such help is asked

that it is withheld. It is only the dishonest debtor whose career will not bear the daylight, that has any cause, or as a rule, who does light out and seek new fields in which to find fresh victims.

We are glad to say that Canada is not cursed with many merchants of this class, and we could do without even the few we have if we could be safely relieved of their presence. One of the latest of these "emigrants" and the one who has given rise to these remarks is R. H. Gordon, jeweler, of Ridgetown, Ont., a gentleman whose sudden departure has left many sad hearts and badly balanced accounts amongst the wholesale trade of this Province. Mr. Gordon has been in business for some years, and although regarded with suspicion and refused credit by some houses, succeeded in working himself into the confidence of others. The result has proven that this confidence has been sadly misplaced and that Mr. Gordon's line of credit should have been limited to any goods he paid the cash for before he got them.

A few weeks ago Mr. Gordon's creditors were astonished at receiving from his clerk an "identical note" which read as follows:—"Mr. Gordon and wife went for a trip on the upper lakes last week; I have just received a letter from him to say that he will not be back again, and to send you some goods which I have sent you by express this day."

This is certainly about the coolest although hardly the most refreshing thing we have heard during this hot spell, especially when it is known that the goods returned did not amount to anything like a tythe of the amount of his indebtedness. It is to be hoped that the creditors will take the trouble to follow Mr. Gordon up and have him disgorge the plunder he managed to secure before he sailed away on the western pleasure trip.

Exit Gordon—having left Canada for the country's good, we trust that the farewell will be a long one, as this country does not take kindly to merchants having proclivities such as the one indicated by the letter published above.

## AVOID THE APPEARANCE OF EVIL.

The case of Fruidentburg v. Ellis, of which mention has several times been made in our columns is, although uncommon, not altogether singular. We have known several instances during the past ten years, of merchants who suddenly

and mysteriously disappeared much to the grief of their friends and creditors, and afterwards turned up again to assure them that their absence was only the result of a passing freak and meant nothing. Such conduct, however funny it may seem, is hardly in keeping with the habits of a first-class business man, and we can scarcely wonder that Mr. Fruidentburg received the treatment he did considering the circumstances of his absence.

We think common sense should dictate the propriety of any business man intending to leave his business for a while, that he should go through his accounts carefully and see what notes he has maturing during the time he expects to be away, and at once make some arrangement either to pay them in full or to get the creditors to whom they are owing to carry them until his return. We say common business prudence should dictate some such course as this, for it is not only awkward for the wholesale merchant to have maturing paper entirely ignored in that way, but is ruinous to the debtor who allows such a thing to happen. Business is business, and the debtor who is reckless of his own credit need scarcely be surprised if his creditors fail to trouble themselves as to whether his good name is maintained or not. Some merchants seem to think that it is a matter of indifference to wholesale houses whether their notes are met or not, they let things go in a kind of hap-hazard way and trust to luck to bring them through somehow. This system does not pay, and we are surprised that any such person can feel offended when they are plainly told that their creditors are bound to have their rights in a proper and legitimate manner. The way to avoid such difficulties is to conduct business upon business principles, and one of the first of these is that a debtor should always make some satisfactory provision for his indebtedness if he desires to keep himself worthy of credit.

#### OUR NEW HIGHWAY TO THE NORTH-WEST.

The opening of the railroad from Prince Arthur's Landing to Winnipeg marks a new era in the development of our great North-West territory. Hitherto our roadway to the North-West lay through American territory, a torturous course and long, and one moreover hedged in by every Custom house monstrosity that the ingenuity of Yanke

red tapism could invent. Indeed, it has often seemed to us, that if the American government had been in partnership with Chicago and St. Paul's merchants, they could not have acted more thoroughly in concert with them, and more ungenerously to their Canadian competitors for the North-West trade. As we pointed out some time ago, the only possible way to wholly overcome this state of affairs, is by the rapid construction of the Lake Superior section of the Canada Pacific road, which would give us an all rail route through our own territory. Until this is an accomplished fact, we shall always be more or less at the mercy of greedy and unscrupulous competitors, who will hesitate at nothing in order to keep possession of the great and growing trade of that wonderful fertile belt that belongs to us in the North-West.

The opening of the Thunder Bay section however, is a partial solution of the difficulty, in as much as it furnishes us with an all Canadian route for at least six months of the year. This is a boon which can only be fully appreciated by those who have experienced the delays and impositions incidental to the old route through American territory. In a conversation with Mr. Beatty, one of the proprietors of the North-West Transportation Company of Canada, he assured us that their Company are now making preparations to send passengers through from Sarnia to Winnipeg in forty-eight hours. They propose to leave Sarnia at about two o'clock in the afternoon, and making at once along the western shore of Michigan, reach the Sault Ste. Marie River in time to get through the canal before next night. This will give them the second night to run across Lake Superior, and thus enable them to reach Prince Arthur's Landing in about thirty-six hours after leaving Sarnia. The run by rail from the Landing to Winnipeg can, as soon as the road is properly ballasted, be made in about fifteen hours including stoppages. This will bring Toronto within three days of Winnipeg by an all Canadian route, and should materially aid in the development of our trade with the North-West. Hitherto one of the principal drawbacks to our successful prosecution of this trade has been the exorbitant rates charged for Canadian freight, and the delays incidental to the imperfect organization and the equipment of some of the roads over

which it had to pass. The rates over the new route should not exceed more than one-third to one-half of the former rates, and the saving of time should be equally as great. Looked at from any standpoint, whether national or commercial, the opening of this new Canadian highway is one of the most important steps that the Dominion has yet accomplished. One of the greatest drawbacks from a national point of view of the old state of things, was the habit the Americans had of tampering with our emigrants to the North-West, while en route through their territory. It is no exaggeration to say that hundreds of good emigrants that had been induced by Canadian emigration agents, and assisted with Canadian money to try their fortunes in the far away North-West, never reached their destination, on account of their having been induced by false representations made during their journey through the United States by American Agents to settle in that country. This not only resulted in a loss to Canada of the money that had been expended upon them, but of the prospective gain that any country in which they made their residence was certain to derive from their labors. As Canadians we are glad to know that this state of things will soon end, and that we shall soon be in a position to send our emigrants without any loss of time over our own route to our own prairie lands.

The opening of this new highway will no doubt increase the volume of trade between the Eastern Provinces and the North-West, and we trust that it may in addition tend materially to strengthen our evergrowing feeling of Canadian nationality and independence of our neighbors to the South of us.

#### CORRESPONDENCE.

The Editor does not hold himself responsible in any way for the opinions expressed by correspondents

To the Editor Trader:

DEAR SIR.—We have read with surprise the letter of E. Fruidentburg, jeweler, Ottawa, in your July issue, said letter purporting to be a necessary one of self-defence in reply to an article written in your June issue, under the head of Business Notes, which article you, no doubt, were prompted to write from current report caused by the legal action we had taken, owing to his mysterious disappearance from his place of business on

New Year's Eve last, and which was substantially correct in the facts therein stated, said article being printed, as you know, without our knowledge or instigation. Had Mr. Freudenberg left it there, we would not have found it necessary to make public the true state of affairs, as we are now compelled in our own self defence to do. The particulars of the case are as follows: Mr. F. left his home and business last New Year's Eve, taking with him valuable stock and all the available cash he could secure. Mrs. F., his wife, in great distress appealed to the Chief of Police to have him make thorough search through the city, as she was not aware of his whereabouts or intentions. Detective McVeitty, who was deputed by the Chief to make search, could find no trace or clue of him, as Mr. Freudenberg, as afterwards transpired, was quietly making his way to Germany, and who would blame us for leaving his wife and family helpless, continued on his journey across the ocean, and not until his arrival did he deem it necessary to even let his wife know, let alone his creditors, of his whereabouts, and that she was left with any funds was no fault of his as he intended to take all. It appears his wife usually took charge of the money, and Mr. F. had induced her to place what cash she had, amounting to between \$800 and \$400, in their new safe, and pretending to lock the vault, gave her both keys, thus cunningly deceiving her into the belief that this money was secure in her own possession. The paper in which she kept the money wrapped in had in one end, some \$50, all of like denomination, pinned up. Whilst she was absent, he easily took this money from the unlocked vault, and after abstracting all the money, as he thought, from the paper, dropped it on the floor and cleared. This paper was picked up by his little boy next day by mere accident, saving it from being swept out, containing still the \$50 pinned in, and thus we are shown how it was he deliberately left sufficient funds at the disposal of his wife, and how it was that he did not take all available funds with him. This was the state of affairs we found things some seventeen days after his departure, and being his heaviest creditors, under the advice of our solicitors, found it necessary for our own security to attach the estate. The absurdity of his statement that he was not indebted to us one cent requires no reply,

being amply borne out by the courts twice sustaining our action. The declaration he makes in reference to notifying his creditors is equally absurd, as that would be precisely what any right intending business man would do, especially when leaving only a wife and child behind him, his not notifying his creditors was bad enough in all conscience, but ten-fold worse was it departing unknown to his wife, leaving her in an agony of mind, to mourn his death for aught she knew. We might add at considerable length to this case, but have stated now more than sufficient to convince any reader that we were perfectly justified in the course pursued, and that his is one of the most disgraceful proceedings on the part of any man, without a feature of palliation or the faintest plea of justification. Much and more that we have stated is backed up by very strong affidavits, duly sworn and attested to, by the Chief of Police, Detective McVeitty, and seven jewelers of the City of Ottawa, who are all a unit in sustaining us in the course we pursued.

And with the words of righteous indignation indulged in in his closing remarks, we leave it to your readers to judge who was the cause of the action taken by us, and who it was that left his wife helpless and without means of support. None regretted more than ourselves the necessity of taking the steps we did to protect our property and the principles of business, which has not been without expense, loss of time and much annoyance.

Yours respectfully,

P. W. ELLIS & Co.

### Selected Matter.

#### THE SULTAN'S TREASURY.

The American ministers to Turkey and Austria, General Wallace and Mr. Phelps, "received permission—now very rarely granted—to inspect the Imperial Treasury, and were surprised at the amount of treasure in the vaults and the great number of precious stones displayed. There were forty officials in attendance," the dispatch went on, "who opened the locks with many formalities." Not the least curious of the anomalies to be noticed at Constantinople is the existence of this treasury, perhaps the richest in the world, while at the same time the

Government is hopelessly in debt—bankrupt to all intents and purposes. Mr. Dwight, in his "Turkish Life in War Time" gives an interesting description of a visit to the Imperial Treasury at Constantinople, which is situated within the inner court of the Seraglio, in one of the heavy stone outbuildings of the ancient palace. One going thither from the city must pass through three massive walls ere he enters the court where stands the treasure-house, a building of dull gray stone roofed with lead, and having a single door of massive iron. A low, arched doorway leads to the interior, two connecting chambers, each about eighteen feet square, heavily vaulted and lighted by small windows with strong iron gratings. Round each room runs a gallery, and the wall space to the ceiling is occupied by glass cases, while in the centre of each apartment is a large glass show-case. There is a guard at the outer door, and at intervals of four or five feet all round the walls stand sentinels, mute and motionless, all clad in the everlasting black broadcloth and red fez introduced by the last of the great Sultans, Mahmoud the Reformer. One gallery is occupied with effigies of the Sultans, each in the robes and jewels and armor of the monarch as he lived. The dresses are mostly of silk brocade and cloth of gold, and many of the figures are weighed down with jewels and magnificent arms. Prominent among them is Mohammed II., the conqueror of Constantinople, who left the mark of his bloody hand high up on the pillar of what is now the mosque of St. Sophia; the hilt of his dagger is a single emerald, two inches long and half as large. All the figures save two wear the turban bedecked with diamonds, the exceptions being little Osman II., butchered in his boyhood, Mahmoud the Reformer, whose effigy is the last in the list. He appears in European broadcloth, with the red fez; the head-covering, however, being ornamented with a plume of bird of paradise feathers, caught up by a great spray of diamonds. Two thrones are in the outer room. One that of Nadir Shah, of Persia, is of fine, dark wood, delicately inlaid with pearl and ivory, and having a canopy of the same material, from which is suspended a great golden ball, decorated with precious stones. The other is about as splendid and uncomfortable a seat as could be devised. It is a platform about two and one-half feet square, with a

cushion of cloth of gold, embroidered with rubies, diamonds and pearls. Around three sides of the cushion is a low rail supported by miniature columns and standing some eight inches high; it is of gold studded with clusters of rubies, and the whole throne is covered with plates of gold. In one cabinet is shown the state cradle of many sultans, which stand low on its rockers like those still in use in the East. The two ends rise a foot above the mattress, and are connected at the top by a bar running lengthwise as a support for a curtain. The whole is of solid gold, crusted on the outside with pearls, diamonds, rubies and turquoises. It would not be possible to describe in detail the contents of these rooms. "There are," says Mr. Dwight, "antique arms and armor, heavy with gold and jewels, there are innumerable horse-trappings and saddles, covered with plates of gold and studded with emeralds, rubies, topazes, diamonds and pearls; there are saddle-cloths embroidered with precious stones. Several sofa covers hang in the cabinets as background to the smaller articles; they are worth \$150,000 apiece, and are of heavy cloth of gold embroidered with seed pearls." There are bird-cages of gold, some with clocks face downward, at the bottom; sacks of velvet embroidered with gold and pearls and diamonds; "samplers" of red velvet on which texts from the Koran are embroidered in diamonds; amber mouthpieces for pipes studded with diamonds and rubies; vases of crystal, agate and onyx, many enriched with jewels; inkstands and snuff-boxes innumerable, coffee-sets, tea-sets, knives, forks and spoons of solid gold, with jewels on their handles; an immenso array of clocks; fans beyond counting; umbrellas of white silk, exquisitely embroidered with gold and having for handles, matchless sprays of coral a yard long; tea-sets of tortoise-shell as thin as paper. Mr. Dwight describes one toy—"a figure of a Sultan seated on his throne under a golden canopy ribbed with alternate rubies and emeralds, the whole structure being perhaps six inches high. The body of the figure is a single huge pearl; the lower extremities are carved from a blue turquoise, and the turban is a solid mass of diamonds." "After every conceivable use has been made of the jewels, the surplus unmounted stones are gathered by handfulls into crystal bowls," in one of which are three uncut emeralds, the largest

the size of a man's fist, and the smallest as big as a hen's egg. During the late war the Government pledged some of its jewels to the banks for a loan of \$80,000,000. The bankers removed to their own vaults precious stones of value sufficient to secure the loan fully, yet the contents of the three small boxes left no appreciable gap in the great accumulation. Such is the treasure-house of the bankrupt ruler of a ruined nation. The Commander of the Faithful, it may be added, has at his disposition, under certain circumstances, a still more remarkable accumulation of wealth. This is the "Treasure of Islam," the offering of gold and silver deposited by many successive generations of pilgrims to the three Holy Places—the Caaba at Mecca, the vaults of the Mosque of Soliman at Jerusalem and the crypt of the tomb of Ali at the gates of Bagdad. The funds thus collected are designed solely for the defense of Islam in its extremity, and their guardians would yield them for no other purpose. According to tradition a Persian emperor during the sixteenth century, undertook to obtain possession of the treasure of the Tomb of Ali, but the force he sent to despoil the shrine was miraculously hindered, the soldiers' legs being stiffened almost into stone, so that they could not approach the sanctuary, and the spirits of the air, controlled by Soliman, are fabled to have concealed the treasures at Jerusalem during the occupation by the Crusaders. A contemporary calculator has placed the rate of accumulation at \$600,000 a year, and the total value of the funds at \$600,000,000; but these figures are by less enthusiastic authorities regarded as largely beyond the truth, and it is added that on several occasions in modern times the Sultan has drawn upon the funds for war expenditures. Nevertheless the "Treasure of Islam" must amount to many millions of money. —Exchange.

#### IRIDIUM IN THE ARTS.

Iridium is a metal that has long been known as possessing the quality of hardness in a high degree, and has been extensively used for the "diamond" points of gold pens. It has, however, been an intractable metal, difficult to work, and for this reason has been but little used. It remained for Mr. John Holland, the well known gold penmaker, of Cincinnati, to discover a process by which the

metal is made available for use in the arts. For upwards of eighteen years he conducted experiments with iridium, with a view to making it more readily available for use for pen points. He has succeeded in producing, in fact, a new metal, which has a bright metallic color similar to that of hardened steel; it takes a high polish, which does not tarnish or oxidize in the air; it does not dissolve in the strongest acids or alkalis; and it is harder than steel, agate, rock-crystal, and ruby. Iridium can be soldered to gold, silver, brass, copper, iron, steel and other metals. With these wonderful properties it can be adopted with great success for a multitude of mechanical uses and has already been applied to many with great success.

Iridium is found in considerable quantities in the platinum ores, in the forms of platinum-iridium, which is an alloy of platinum and iridium, and osmiridium or iridosmine, which is an alloy of osmium and iridium. The platinum-iridium occurs in grains, and sometimes in cubes with rounded edges. The iridosmine is usually found in the form of flat, irregular grains, and occasionally in hexagonal prisms. The geographical distribution of this metal is quite wide; it is found in California, Oregon, Russia, East India, Borneo, South America, Canada, and Australia, and in small quantities in France, Germany and Spain. As usually found, iridosmine, or the so-called native iridium, is associated with numerous rare metals, viz.: osmium, platinum, rhodium, ruthenium and palladium, and also with iron and copper. Iridium possesses a white lustre resembling that of steel. In the cold it is quite brittle, but at a white heat is somewhat malleable. It is one of the heaviest of metals, having a specific gravity of 22.88. When an alcoholic solution of the sulphate of iridium is exposed to sunlight, it deposits an impalpable black powder, which has the very peculiar property of setting fire to a piece of paper saturated with alcohol when brought into contact with the slightest trace of it.

The iridium melted by the Holland process is compact and crystalline; it is harder than the natural metal. The operation of sawing the metal is accomplished by means of a copper disc, making about 5,000 revolutions per minute, assisted by emery and water. When the metal is ground to a smooth

surface by means of emery on a copper wheel as described, it requires a good polish, which may be increased by using "crocus powder" afterwards on a similar wheel. Iridium which has been melted by Mr. Holland's process is nearly as hard as the ruby, which is next in hardness to the diamond. It cuts glass readily; the best files are ruined by attempting to file it. It has about the color of steel. It is not attacked by acids and does not tarnish. The best steel tools fail to make any impression upon it. A metal with this wonderful combination of valuable properties, will undoubtedly find many uses to which it can be applied with great advantage.

It has already been successfully applied to electric lights; for contact points for telegraphic instruments; for bearings for balances; for fine scales; for jewels for watches and clocks; for bearings for mariners' compasses; for styuses; for drawing and ruling pens; for dental tools, etc. As iridium has a handsome, bright color, and is susceptible of a high polish, which does not tarnish or scratch, it promises to become an important factor in the manufacture of jewelry. Already it is being extensively used in combination with gold, silver and platinum, with which it alloys readily, in the production of sleeve buttons, pins, studs, etc. It is also used for jewelers' watches, and promises to be more valuable than the ruby for this purpose. Watch cases will also be soon introduced made of iridium.

This metal is now produced by the American Iridium Company, of Cincinnati, and letters patent have been taken out for the United States, Europe and Canada. It can be produced in masses of almost any shape desired, and the company is now making it in a variety of shapes to fill orders from some of the largest manufacturing jewelers in the country. Unquestionably iridium has a promising future before it, and its adoption in the arts will be watched with interest.—*Jewelers' Circular.*

#### ENAMEL PAINTING.

Enameling is only done on gold and copper, silver swells up and causes blisters and holes in the coat of enamel. All enamel paintings are, in fact, done on copper or gold. The goldsmith prepares the plate that is to be painted upon.

The gold should be twenty-two carats fine; if purer, it would not be sufficiently

stiff; if coarser, it would be subject to melt, and its alloy should be half white and half red—that is, half silver and half copper; whereby the enamel with which it is to be covered will be less disposed to turn green than if the alloy were entirely copper.

The workman must reserve for the edge of the plate a small fillet, which he calls the border. This ledge serves to retain the enamel, and hinders it from falling off when applied and pressed on with a spatula. When the plate is not to be counter enameled it should be charged with less enamel, as, when exposed to heat, the enamel draws up the gold to itself, and makes the piece convex. When the enamel is not to cover the whole plate, it becomes necessary to prepare a lodgment for it. With this view, all the outlines of the figure are traced on the plate with a black lead pencil, after which recourse is had to the graver. The whole space enclosed by the outlines must be hollowed out so as to be of a depth equal to the height of the fillet had the plate been entirely enameled. This sinking of the surface must be done with a flat graver, as equally as possible; for if there be an eminence, the enamel would be weaker at that point, and the ground would appear. Some artists hatch the bottom of the hollow with close lines which cross each other in all directions; others make lines or scratches with the end of a file broken off square. The hatchings or scratches lay hold of the enamel, which might otherwise separate from the plate. After this operation, the plate is cleansed by boiling it in an alkaline lye, and it is washed first with a little weak vinegar, and then with clear water.

The plate thus prepared is covered with a coat of white enamel, which is done by burnishing a piece of enamel in an agate or porcelain mortar to a course powder-like sand, washing it well with water, and applying it in the hollow part in its moist state. The plate may meanwhile be held in an ordinary forceps. The enamel powder is spread with a spatula for condensing the enamel powder the edges of the plate are struck upon with this spatula. Whenever the piece is dry, it is placed on a slip of sheet-iron perforated with several small holes, which is laid on hot cinders; and it is left there until it ceases to steam. It must be kept hot till it goes to the fire; for, were it allowed to cool, it would become necessary

to heat it again very gradually at the mouth of the furnace of fusion, to prevent the enamel from decrepitating and flying off.

The enamel plate, when cold, is to be washed in very dilute nitric acid, and afterwards in cold water, and a second coat of granular enamel paste is to be applied, with the requisite precautions. This, being passed through the fire, is to be treated in the same way a third time, when the process will be found complete. Should any chinks happen to the enamel coat, they must be widened with a graver, and the space being filled with ground enamel is to be repaired in the muffle. The plate, covered with a pure white enamel, requires always to be polished and smoothed with sandstone and water, particularly if the article has a plane surface; and it is then finally glazed at the fire. The painting operation now follows. The artist prepares his enamel colors by pounding them in an agate mortar, with a pestle of agate, and grinding them on an agate slab, with oil of lavender, rendered viscid by exposure to the sun in a shallow vessel, loosely covered with agate or glass. The grinding of two drachms of enamel pigment into an impalpable powder will occupy a laborer a whole day. The painter should have alongside of him a stove, in which a moderate fire is kept up, for drying his work whenever the figures are finished. It is then passed through the muffle.—*Watchmaker and Jeweler.*

#### FIRE GILDING.

We are pleased to give our readers the following reliable formula for fire gilding, for which we are indebted to *Ackerman's Illustrated Zeitung.*

The story is told, that the King of Bavaria, Louis I., wishing to ornament the large hall in his palace with twelve colossal statues of his ancestors, cast in brass and plated with gold by the application of heat, sent his privy-councilor to Milan to confer with Manfredini, the most celebrated metallurgist in Europe at that time, as to the feasibility of the undertaking. Manfredini's reply to the councilor was: "If any one succeeds in gilding one of those colossal figures in the way you describe, without at least two men having lost their lives during the operation, I will cut off my own head."

King Louis, however, refused to be discouraged, and soon had the satisfaction of seeing himself surrounded by the



colossal statues, cast and gilded as he wished, without a single accident having occurred. As each one of the statues was successfully hoisted and placed upon its pedestal, the King used to say with a smile: "There goes another head off poor Manfredini!"

It is a strange freak of nature that gold, which resists the action of almost all acids, succumbs at once to the action of mercury.

If some pure gold is put into a crucible and melted, and then some mercury is poured into it, the two metals will immediately amalgamate. The molten mass, however, must be quickly transferred to a cooler vessel, or poured into cold water, as otherwise the mercury will evaporate, as it is unable to bear high temperature. When the amalgam is cooled it forms an alloy as soft and ductile as butter, and can be spread like paint upon any smooth surface. Any metal article plated in this way will look exactly like solid silver, owing to the presence of the mercury in the paint. To expel the mercury is the next process, and it is easily done by exposing the article to the heat of a very hot fire; the mercury evaporates, the gold sinks into the pores of the metal beneath, with which it becomes thoroughly amalgamated.

The mercury does not forsake the gold without a struggle; as it becomes more and more heated, tiny bubbles or beads appear on the surface, that must be immediately smoothed down or rubbed off with a horsehair brush, or the surface of the plating will be covered with small excrescences. When the mercury has entirely "vanished into thin air," there will remain upon the gold a precipitate or sediment, that must be brushed off; the article will be found plated finely and evenly with pure gold, having a very smooth, beautiful golden surface.

The gold is of a very light color, but by gradually heating it several times, it can be toned down to any required tint. A reddish tinge can be given to it by coating it with gilders' wax, which is a mixture of beeswax, verdigris and hematite, and then heating it until the wax is burnt off, and the other ingredients are absorbed into the gold. A pale yellow tint can be obtained by washing the article, when the process of plating is entirely completed, with vinegar in which some verdigris, hematite and saltpetre have been dissolved, and then heating.

An exceptionally handsome frosted

surface on the gold plating is obtained by spreading a paste over it, composed of four parts alum, eight parts saltpetre, two parts salt and one part pulverized glass. These ingredients are melted together in a crucible and spread upon the gold surface, which should also be well heated, while still boiling. As soon as it is well and evenly distributed, the whole article should be plunged into ice-cold water.

This process produces a frosted surface far more beautiful than what is usually seen, and equals, if it is not superior to, even the finest frosting ever done in Paris, where, as we all know, the manufacturers are famous for their exquisite frosted work.—*Translated for The Jewelers' Journal.*

### RETURNING GOODS.

It is, we are aware, an enticing custom in certain departments of retail trade, to send merchandise to customers "on approbation." A lady can get an assortment of mantles or bonnets sent to her house for trial, the one which pleases her to be retained and the rest returned. Or paterfamilias can, if he sees a carpet which he fancies for his billiard room, have it sent home for the approval of his wife, to be returned if her taste does not agree with his. This may be legitimate enough; and sales are often effected by such means.

But it is a very different thing for a retail merchant in a country town 150 miles distant, to visit Hamilton or Toronto in March, buy a parcel of goods from an importer, and in April or May return a portion of them under the pretext that he has over-bought, or that trade is slack, or that he has "made a mistake." This may be a very convenient practice for the retailer, but is a nuisance to the wholesale dealer. Besides, it is not business. We have seen, in the letter-book of one wholesale house, a dozen transactions of this kind which have occurred this spring, and it appears as though, trade being slack, the country customer is taking advantage of the importer to throw upon his hands odds and ends of surplus stock, for it is practised upon a number of houses here.

One man sends back, on the 10th of May, certain pieces of dress goods amounting to \$60, culled from a parcel bought by himself on the 7th April. Another coolly returns some \$40 worth of fancy goods, which he professes to find "un-

suited to his trade," as though his lack of judgment in buying them six weeks before could properly be visited upon the house which sold them. In isolated cases a merchant may take back a piece or two of stuff to oblige a customer; but that is a different matter from making a practice of returning goods at the whim of an inexperienced country dealer. The wholesale trade should not submit to it. The fact that the practice complained of exists appears to us to indicate over-trading, or an over-anxiety to humor the retail customer.

Retailers who know their business do not resort to such petty artifices. In the first place, they are unlikely to buy what they do not want; and if goods they have bought do not sell, common sense tells them that they must "grin and bear" the loss—not ask the importer to take a part of the load and do the grinning. He is much more likely to do something more demonstrative. If an order be "stuffed" it serves the seller rightly to have the goods not purchased returned, and it is the receiver's business to return them promptly. So, too, if merchandise be imperfect or not as requested. But we regret to find instances where goods, shipped precisely as bought, have been returned on the flimsiest pretences, or without any complaint being made. This, too, after having been kept a month, damaged, fly-blown, the packages frayed or covering torn. Such a proceeding argues a reliance on the good nature of the wholesale dealer that is child-like. Indeed, such modes of doing business are too childish to be submitted to, and we trust they will not be longer encouraged.—*Monetary Times.*

### THE STORY OF A WATCH.

Thirty-one years ago a gentleman now occupying a prominent place in Masonic circles in San Francisco, Cal., then residing in an interior county of the State, sent an order to London for the manufacture of a fine gold watch, of English make, a duplex movement, heavy gold magic cases, and appropriate scroll work. During the following year, the watch, a masterpiece, costing \$100, was received and worn by its owner for the next nine or ten years. In 1861 a friend started for this city on a visit, bringing the watch with him, since which time nothing has been seen or heard of him, the supposition being that he was murdered and plundered by some of the bad characters that

were so prevalent in San Francisco at that time. The missing man had abundant means, and left behind him a piece of mining property worth \$80,000 or \$40,000, which, by the lapse of time and the local mining laws, passed into other hands, showing conclusively that at least some accident had overtaken him. The owner of the watch mourned the loss of his friend, and regretted the missing time-piece. After some years he moved to San Francisco, where in time the above incidents became to memory as a dream. A few days ago he was conversing with a friend in a jewelry store, when a stranger stepped up alongside of him, laid a watch on the counter and asked the proprietor to purchase it, and, to the astonishment of our masonic friend, he recognized at the first glance the time-piece he had lost 21 years previously, and immediately claimed it. The stranger explained that he was disposing of the watch for a lady in destitute circumstances, and naturally insisted upon having some proof of the claimant's ownership before recognizing the claim. The two, by agreement, went to another jewelry establishment, the proprietor of which had formerly been in business in the same interior town with the claimant, and who had cleaned the watch once or twice twenty odd years before. The watch was handed him, and before any thing had been said in reference to it he said, "Why,—, this is your watch; the one you lost." Another friend who had last seen the watch in 1856 recognized it at first sight. Subsequent investigation revealed that about 1861-2 a gentleman of San Francisco purchased the watch of a man, possibly one who had murdered the visitor from the interior, for \$850 and had carried it up to the day of his death, which occurred in the Tucson, Arizona, about a year and a half ago. In the settlement of his estate the watch was appraised at the low valuation of \$125, and the sister of the deceased, knowing it to be valuable, took it as a portion of her interest in the property. Becoming reduced in circumstances, she put it in the hands of a friend to sell for her, with the result as above told. Not wishing to involve the lady in legal proceedings, and sympathizing with her destitute condition, the pleased owner of his newly found treasure magnanimously paid her \$100 for the return of his property, which was found to be in as good condition as the day it was bought.—*Exchange.*

### CURIOUS TIMEKEEPERS.

An American traveler once saw a rare Japanese timekeeper, which had been described in an old record. This clock, in a frame three feet high and five long, represented a noon landscape of great loveliness. In the foreground were plum and cherry trees, and rich plants in full bloom; in the rear a hill, gradual in ascent, from which flowed a cascade admirably imitated in crystal. From this point a thread-like stream glided along, wandering in its windings rocks and tiny islands, but presently losing itself in a far-off stretch of woodland. In the sky turned a golden sun indicating as it passed the striking the hours, which were all marked upon the frame below, where a slow creeping tortoise served as a hand. A bird of exquisite plumage resting by its wing proclaimed the expiration of each hour. When the song ceased, a mouse sprang from a grotto near by, and running over the hill, hastily disappeared.

In the South Kensington museum, at London, is a small watch about one hundred years old, representing an apple, the golden case ornamented with grains of pearl. Another old Nuremburg watch has the form of an acorn, and is provided with a dainty pistol, which, perhaps, serves as an alarm.

In London in an eagle shaped watch, within which, when the body of the bird is opened, a richly ornamented face is seen. They are sometimes found in the form of ducks, geese and skulls.

The Bishop of Ely had a watch in the head of his cane, and a prince of Saxony had one in his riding saddle.

A watch made for Catherine I. of Russia is a repeater and a musical watch. Within is the holy sepulcher and the Roman guard. By touching a spring the stones move away from the door, the guard kneels down, angels appear, and the holy women step into the tomb and sing the Easter song that is heard in all the Russian churches.

King George III of England had a watch not larger than a five cent piece, which had 120 different parts, the whole not weighing quite as much as a ten cent piece.

Clocks and watches must usually be wound up every day, though some clocks will run eight days without winding, and a few even longer than that. But there was a century clock at the great Centennial exhibition at Philadelphia. The man who made it says it will run a

hundred years without winding, though it is hard to believe this.

There was another curious kind of a clock at the Centennial. It was fixed in a carriage, and tells just how many times the wheel turns round on a journey, and how many miles have been traveled, and how long the carriage has been in making the trip.—*Exchange.*

### PRECIOUS STONES AS SYMBOLS.

The months, like the apostles, are symbolized by precious stones:

January, the jacinth or hyacinth, sometimes the garnet. The garnet stands for health and joy, and is also an emblem of constancy.

February, the amethyst, emblematic of sobriety and peace of mind. It is dedicated to Venus, notwithstanding its sober tendency. In the zodiac it stands for Sagittarius, and in metallurgy for copper.

March, the blood stone, emblem of courage and presence of mind.

April, the sapphire, and diamond standing for repentance and innocence. The first stone was thought to produce somnambulism and inspire the wearer with holy faith in all sacred things. In the zodiac it represents Leo. The second stone gives us spiritual ecstasy, trance and visions. In the zodiac it belongs to Virgo.

May, the emerald, success in love. In the zodiac it stands for Cancer.

June the agate, emblematic of health and long life. The agate was believed to quench thirst, and when held in the mouth, to allay the violence of fever. The ancients declared that it would render the wearer invisible. In the zodiac it represents Scorpio.

July, the cornelian, symbolizing a contented mind and a good memory.

August, the sardonyx or onyx, emblematic of conjugal felicity. Rabbi Benoni, of the fourteenth century, tells us that the onyx is a dangerous stone, for it contains a little demon which comes out of it at sunset and fills the mind of the wearer with disturbing dreams. The parings from the nails of Venus fell into the Indus and were changed to onyx.

September, the chrysolite, emblematic of *Mens sana in corpore sano.*

October, the aqua-marine, opal, and beryl, standing for hope.

November, the topaz, emblematic of fidelity and friendship.

December the turquoise or ruby,



# JOHN SEGSWORTH & CO.,

WHOLESALE IMPORTERS OF

Watches, Jewelry, Etc.,

**NO. 23 SCOTT STREET.**

Canadian Wholesale Agents For

**AMERICAN WATCH CO.,**

**Waltham, Mass.**

"LONGINE" WATCH CO. "AGASSIZ" WATCH CO.

TORONTO, AUGUST 1ST, 1882.

It is with great pleasure that we take this opportunity to thank our numerous customers throughout the country for their kind patronage during the past half year; also to inform them that our Mr. J. Segsworth is at present in Europe where he is engaged in selecting a very complete and well assorted stock for the Fall Trade, which, if we may trust indications, will be very large.

From the facilities which we have of buying for CASH, thus securing the lowest possible prices, also from Mr. Segsworth's well-known reputation as a close buyer, we will be able to offer our Goods at the lowest possible figures.

It only remains to be said that this Fall we will show the largest and most complete stock in the Province, which it will be to the advantage of every Jeweler in the country to see. Wishing one and all a very prosperous business this Fall.

We remain, yours truly,

**JOHN SEGSWORTH & CO.**

symbolizing prosperity and great success. The turquoise pales when the fortunes of its owner wane. The ruby was beloved by the Burmese and Hindus to ripen like the mango. They described it as turning successfully yellow, green, blue, and, last of all, brilliant red.—*Watchmaker and Metalworker.*

### THE BRAZILIAN DIAMOND MINES.

These mines lie in the province Minas Geraes, a depression surrounded by mountains. Admittance is strictly prohibited and only granted in very exceptional cases, and the narrow passes leading to the mines are guarded by soldiers. The yield has lately much decreased, and only about 1,000 workmen (about one-third of those formerly employed) are at present occupied with diamond washing. Negroes are exclusively employed, and although the number of overseers is very large, the former understand to cheat the latter with much adroitness. The stolen diamonds are sold to smugglers who venture into the mines under the cover of the night, and at the risk of life, remain hidden for days in the cabins until a chance is offered them to slip out unobserved. The condition of the negroes is pitiable; they receive a mere pittance for this work, and are compelled to labor till night, without interruption or meals. They stand in water all day, constantly exposed to the danger of being buried by the cavings of the banks, and many other dangers; yet they prefer this work to any other, in view of the money they may procure from the sale of a stolen diamond, or in hopes of their manumission, should they happen to find a diamond of thirteen or more karats. If a negro has found a diamond, he must raise it between thumb and first finger, show it to the supervisor, and then place it into a box suspended from the roof of the wash house. At night the box is handed to the special administrator, who weighs the diamonds, and puts them into a bag, which he constantly carries about him. They are handed to the treasurer at the end of each month, who again weighs them and notes it in his books. They are sorted annually, being sifted through twelve differently meshed sieves, put into twelve bags, packed in a box, which, having been sealed by the three highest officials, is sent under military escort to Villa Rica, and thence to Rio de Janeiro. At Villa Rica, the list again is sealed by the general stationed there.—*Exchange.*

### A CURIOUS CLOCK.

The Rutland *Herald* says Mr. S. Holton, a jeweler and watchmaker of Middlebury, Vermont, has recently constructed a curious clock, which acts out to perfection the assassination of President Garfield. The machine is a common cuckoo clock under which is a miniature depot. At one window is a ticket agent dealing out tickets, while at another a telegraph operator is seen busy at his work, and truckmen, porters, train despatchers, etc., are all flying around as natural as life. All of these figures are of wood, about two inches long. At the end of each hour the cuckoo announces the fact, and immediately Garfield appears on the platform, accompanied by Mr. Blaine. Guiteau is seen to follow him, having just alighted from a truck waggon, and as he fires at the President the latter falls. Just then a train of cars comes dashing in, and in the confusion all the principal actors are carried into the depot out of sight. After the train despatcher has given the signal and the train has gone, a small door at the left opens and a priest appears, book in hand, in the act of reading a funeral service, while at the same time another door at the right opens and Guiteau appears on the gallows. The priest retires, and shortly after the gallows disappears with Guiteau and the doors close. This is noted out at the end of each hour, and takes three minutes. Mr. Holton is quite a noted inventor, but this seems to be his masterpiece, and has to be seen to be fully appreciated.

### BUSINESS CHANGES FOR JULY.

E. Maycock, Woodstock, Ont., Fancy Goods, has sold out; Chalmers & Carney, Emerson, Man., Hardware, sold out to Cooper & Co.; G. M. Butchart, Owen Sound, Hardware, damaged by fire; P. Wilker, New Hamburg, Hardware, sold out to Brodrich & Folk; W. B. Stephens, Owen Sound, Hardware, burnt out; M. Forhan, Owen Sound, Jeweler, burnt out; Woltz Bros., Jewelers, closed their Winnipeg branch; J. W. Keetch, Orangeville, Jeweler, removed to Ches'ey; R. H. Gordon, Ridgetown, Jeweler, skedaddled; John Bertram, Hardware, sold out to M. Miller.

### BUSINESS NOTES.

Mr. W. G. H. Lowe, of the firm of Zimmerman, McNaught & Lowe, of this city returned from his European trip last week. His jewelry purchases are also to hand, and the firm are of the opinion that they will this fall show one of the best assorted stocks in Canada. They invite the retail jewelry trade generally to give them a show.

In a lacrosse match between employees of Messrs. Smyth & Fulgor, and Messrs. W. H. Blandell & Co. last week, the former won.

R. H. Gordon, a jeweler in a small way at Ridgetown, Ont.; who moved thither about a year ago from Tilsonburg, where he had borne a good character, has gone from the gaze of his creditors.

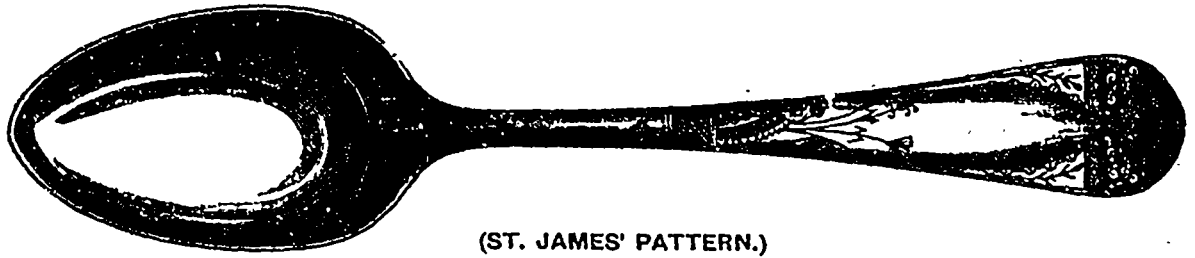
As will be seen from our advertising column, Mr. John Segeworth, the well-known wholesale jeweler of this city, is at present in Europe on a purchasing tour for his firm. We wish him a successful trip.

Mr. JOHN ZIMMERMAN, senior partner of the well-known jewelry house of Zimmerman, McNaught & Lowe, is at present en route to Winnipeg. He carries with him a large stock of the newest lines of English and American jewelry, also the special lines manufactured by the firm themselves. He will probably stay in Winnipeg till about the middle of August, so that any customers in the North-West desiring to do so can have an opportunity of examining his stock.

Our readers will be pleased to learn that Mr. John Inglis, the well known and respected traveller for Vidal & Co., of Montreal, has, in conjunction with Mr. Picard, their book-keeper, bought out the business of their late employers, and is now carrying it on under the style of Inglis, Picard & Co. Mr. Inglis has been so long and favorably known by the jewelry trade of Canada that it would be superfluous in us to attempt to make mention of his many good qualities. He is a good fellow, and we wish him and his partner the utmost success in their new venture.

The old adage "the course of true love never runs smooth" was amply verified in the experience of a jewelry traveller hailing from this city, a few days ago. It appears that the traveller had fallen in love with the daughter of a hard hearted express agent some where up North, and finding that he was not likely to get the stern parent's consent, induced the damsel to elope with him. Although they fled as fast as steam could carry them they failed to get ahead of electricity, and a telegram from the stern and wrathful parent caused their arrest. They were locked up in an hotel for a few hours, until the father could be communicated with and finally brought to reason, the result being that they gained his consent and were lawfully married in the usual orthodox fashion. If the old gentleman is satisfied, the young couple certainly are, and we wish them happiness and prosperity in their wedded life. All's well that ends well.

**BOGUS CANADIAN GOLD.**—A case that has excited a good deal of attention among manufacturing jewelers in this country has just been decided by one of the Judges on the Chancery Division of the High Court of Justice. The action was brought by Messrs. Levelus Brothers' manufacturing jewelers of Birmingham, to prevent a Mr. Ellis Newton, who describes himself as "The American Auctioneer," from selling watch chains and other jewelry as "Canadian" gold. The plaintiffs—one of whom was for some time resident of Montreal—urged that the term "Canadian gold" was a fancy name used in the market to designate imitation gold jewelry of their manufacture. "Canadian gold" was, they claimed an amalgam, the secret of which was known only to themselves. His Lordship, however, pointed out as it was a matter of common knowledge that gold was found in Canada, and any ordinary person would imagine that "Canadian gold" was really gold that had come from Canada, he must dismiss the case, and he accordingly did so.

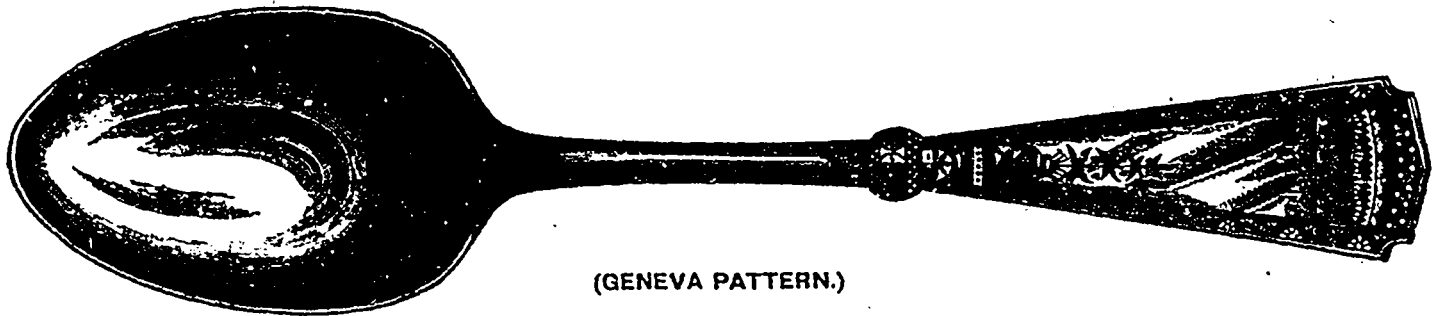


(ST. JAMES' PATTERN.)

Simpson, Hall, Miller & Co.,

*Manufacturers of*

**FINE SILVER PLATED WARE.**



(GENEVA PATTERN.)

INCLUDING THE WM. ROGERS'

**SPOONS, FORKS, KNIVES, ETC.,**

MADE IN

**EXTRA, DOUBLE, TRIPLE; ALSO IN SECTIONAL PLATE.**

Extra Plated upon all points most exposed to wear.

STAMPED "WM. ROGERS X12."

FACTORIES:

**WALLINGFORD, U.S.**

— AND —

**MONTREAL, CANADA.**

The Wm. Rogers' Goods sold by us are made under the supervision of Mr. Wm. Rogers, formerly of Hartford and West Meriden, son of the old original Wm Rogers, who died in 1873. Please do not associate us with goods made in Hartford, Ct., with which we have no connection. We make all the goods we sell, and have our own especial patterns.

**SIMPSON, HALL, MILLER & CO.**

## WORKSHOP NOTES.

**GREASE** spots in paper are first dampened with a fine camel's hair brush dipped in rectified spirits of turpentine, which, when dry, is completely removed by applying a little alcohol.

**GERMAN SILVER** of a very fine grain and excellent quality is produced by melting in a crucible 55 parts copper, 23 nickel, 17 zinc, 3 iron and 2 tin. This alloy is equal to silver, of the same hardness, and not vitreous.

**TO PROTECT STEEL.**—After having cleaned the iron or steel article, anoint it with a solution of wax in benzine, using a fine camel's hair brush. By this treatment articles exposed to acid vapors may be protected against rusting, tools, etc.

**NICKEL-PLATED** brass or iron, which has become coated with burned grease and dirt, may be cleaned without injury to the nickel surface, by boiling in a strong solution of soda or potash, rinse in water, and rub first with moistened and then dry rouge or chalk.

It is sometimes necessary to bore one or more holes in porcelain, but the usual way of doing this is not easy. If, however, an ordinary drill be hardened and kept moist with oil of turpentine, it will easily penetrate the porcelain. The drill commonly employed in connection with scroll-cutting machines answer very well.

**GOOD CEMENT.**—Stir to a thick batter with silicate of soda, 12 parts Portland cement, 6 parts fine sand, 1 part infusorial earth. Very excellent for marble and alabaster. The cemented object need not be heated. After 24 hours, the fracture is firm and the place can with difficulty be found.

**RECOVERING GOLD FROM GALLOONS.**—Previously boil the galloons for a short time with pure woollye or solution of potash, intensified with calcined lime. When all the gold or silver spun silk threads are dissolved, wash the remaining metals several times with pure water, and collect upon a filter of blotting paper.

**QUICKLY PREPARED CEMENT.**—Break an egg and empty its contents; add to the small remainder in the shell the point of a penknife full of white lead, and with your finger stir it into a batter. Slightly warm the fractured faces, and apply the cement. The piece will adhere very firmly after twelve or fourteen hours.

Another coating may be made if the steel or iron is covered with a layer of a mixture obtained by boiling sulphur with turpentine oil; this vaporates and leaves the sulphur upon the surface as pure sulphur, which again combines with the metal and forms sulphuret of iron, by heating the articles, if small, over a gas or alcohol flame.

**VARNISH** for writing on glass may be made of 500 grains ether, 30 grains sandarac and 30 grains mastic. Dissolve and add benzine until the varnish imparts to glass a roughened appearance. Use cold.

The teeth of the anchor scape wheel of watches should receive a little oil. By steel forks, many watchmakers give a little oil to the ruby pin, to prevent the rusting of those steel parts; none is given, however, to those of aluminum, bronze, brass or gold.

A new method of tempering steel has been published by M. Clemandot. The metals are heated to a cherry red, and then compressed strongly until they are cold. The result is great

hardness and an exceedingly fine grain. Steel thus treated makes excellent permanent magnets.

To obtain gold from old watch plates, take equal quantities of saltpeter and borax, and dissolve in a small quantity of water. Next glow-heat the gilt-pieces and plunge them into this solution. By repeating this several times, the gold will loosen and precipitate in the fluid.

**SOLDERING** cast iron, says the *Engineer*, is generally considered to be very difficult, but it seems to be only a question of thoroughly making bright the surface to be soldered, and using good solder and a clean swab with muriatic acid. Sodium amalgam might be usefully employed for the purpose.

**GOLD VARNISH FOR METALS.**—Dr. Kaplas has found in picric and boric acids a gold varnish for metals, giving at once a firm and handsome surface. He recommends a clear solution of shellac in alcohol, with an addition of picric acid, and about  $\frac{1}{2}$  per cent. of boric acid.

**STEEL** which has rusted can be cleaned by brushing with a paste composed of  $\frac{1}{2}$  ounce cyanide potassium,  $\frac{1}{2}$  ounce castile soap, 1 ounce whiting, and water sufficient to form a paste. The steel should first be washed with a solution of  $\frac{1}{2}$  ounce cyanide potassium in 2-ounces of water.

**A CEMENT** that resists acids is made by melting 1 part India rubber, with 2 parts linseed oil, and add sufficient white bolus for consistency. Neither muriatic nor nitric acid attack it; it softens a little in heat and its surface does not dry easily; which is produced by adding 1/5 part litharge.

**STEEL** tempered in oil is not as hard as that in water; softer in tallow than in oil; softer in sealing wax than in tallow. Small drills hardened in sealing wax require no annealing; very thin ones may be tempered by drawing them with a quick motion through the air; they also need no annealing.

**SWEATY HANDS.**—Immerse your hands in freshly drawn well or spring water, and leave them therein until chilled; the evil of perspiring hands may thus be removed in about two weeks. The gentleman who recommends above treatment says that he has handled polished steel on the hottest summer day since, without even leaving the imprint of his fingers thereon.

It is very injurious to expose a watch or movement to the heat of the sun for any length of time, especially when lately cleaned and oiled—the oil evaporates and becomes viscid. The generated vapors will stick to the train and give it a dull, dark look. It sometimes occurs in anchor watches that the shellac will soften and cause the pallets to loosen; wherefore it is necessary to protect the watch as much as possible against the sun.

To color iron and steel brown, dissolve in four parts water, 2 parts crystallized chloride of iron, 2 chloride of antimony, and a trifle of tannic acid, and apply this mixture with a cloth or sponge upon the surface, then let it dry. Repeat the application, according to the depth of the color desired. This coating fully protects the steel against humidity. The chloride of antimony should be as little acid as possible.

**GREASE SPOTS IN MARBLE.**—Saturate carbonate of magnesia, previously heated to remove every trace of mechanically adhering humidity (still better is freshly calcined, cold magnesia—the so-called magnesia usta) with sufficient pure benzine, that it imbibes without parting with an excess,

which only must occur upon being pressed together. Throw a sufficient quantity of this matter upon the provoking grease spot, and rub it upon the place. Perform this operation several times, and the spot will have completely disappeared.

**PROTECTION OF POLISHED BRASS.**—To protect polished brass against dimming, it must be coated with a transparent varnish. Such a one consists of one part white shellac and 5 parts alcohol; or, one part shellac, 1 mastic, and 7 alcohol; or, 8 parts shellac, 2 sandarac, 1 Venetian turpentine, and 50 parts alcohol; or, 12 parts sandarac, 6 mastic, 2 clove, 1 Venetian turpentine and 64 alcohol. The articles, before being varnished, must be well cleaned, and no more be touched by the hand, and heated to about 75° C.

**TO PERFORATE GLASS.**—To perforate glass by electricity, Faves, (*Chem. Zig.*) makes a sheet of hard caoutchouc, 18 cm. long and 12 cm. broad, for a battery of 12 cm. spark, runs a brass wire through it, and fastens it with a screw. The wire end he moistens by a few drops of olive oil, places the glass plate upon it, and passes the current conduit of the other pole over the glass. The spark is then permitted to pass through the glass. By drawing the glass plate slowly over the caoutchouc, many small holes, closely situated together, are obtained, and the glass may be broken in their direction.


THIS is Mr. A. A. Common's receipt for the silvering of glass: Solution 1—Nitrate of silver, 1 ounce; water, 10 ounces. Solution 2—Caustic potash, 1 ounce; water, 10 ounces. Solution 3—Glucose,  $\frac{1}{2}$  ounce; water, 10 ounces. The above quantities are estimated for 250 square inches of surface. Add ammonia to solution No. 1 until the turbidity first produced is just cleared. Now add No. 2. solution, and again ammonia to clear; then a little solution, drop by drop, until the appearance is decidedly turbid again. Then add No. 3. solution, and apply to the clean surface. A film was obtained in 43 minutes at a temperature of 56° Fahrenheit.

**LYONS GOLD, OR TOMBAC.**—According to Prof. Dr. Bottger, Frankfurt, brightly scoured or polished copper articles, if immersed in a boiling concentrated solution of caustic soda, in which so-called tin grey, that is finely powdered metallic zinc were boiled for some time, with an excess of the former, in the alkaline zinc solution, becomes coated with a mirror-lustrous layer of metallic zinc. If an article thus coated, in a dry state, is dipped into olive oil, heated to 120° to 140° C., or sand of the same temperature, the zinc coat will unite with the copper base, and produce the gold colored alloy known by the name of tombac, or Lyons gold.

**CLEANING MAT GOLD ARTICLES.**—For cleaning mat gold articles that have become blackened by exposure, I would recommend a solution of 60 grams carbonate of soda, 30 g. chloride of lime, 15 g. table salt, and  $\frac{1}{2}$  quart water. It is best to restore the lustre either of bright or mat gold. Another recipe gives different proportions: 80 grams chloride of lime, 80 g. bicarbonate of soda, and 20 g. table salt; dissolve these ingredients in 3 liters distilled water. For cleaning an article, lay it into a porcelain dish, cover it with the fluid, and if difficult to clean, heat the latter; next rinse in alcohol and dry in sawdust. The fluid used is no longer good. Store the remainder for use, in glass bottles.



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SCIENCE NOTES.

BELOW is a list of certain alloys of different colors, such as occur often in the practice of the jeweler.

18 karats, red : Fine gold, 750 parts; rod copper, 250.

18 karat, rose: Fine gold, 750 parts; fine silver, 50; red copper, 200.

Green: Fine gold, 750, fine silver 250.

Gray: Fine gold, 750, iron filings, 250. These must be stirred into melted borax, and quickly added to the melted gold. Give much heat.

17 karats, red: Fine gold, 655; fine silver, 200; copper, 145.

15½ karats, 18 karat color: Fine gold, 635; fine silver, 200; copper, 165.

14 karats, common: Fine gold, 560; fine silver, 200; copper, 240.

13 karats, red: Fine gold, 540; fine silver, 150; copper, 310.

13 karats, white: Fine gold, 540; fine silver, 300; copper, 160.

9½ karats, reddish color: Fine gold, 392; silver, 150; copper, 458

To preserve in low-grade golds the color of 18 karats, the alloy to be added must be in equal parts.

EXPORT.—The Grand Duchy of Baden, during 1881, exported watches and watch material to the value of M. 23,068 to the United States. The value of gold ware amounted to 89,902 marks.

TIME OR NIGHT.—Many large cities, as is well known, are poor in illuminated clocks, whereby to know the time at night. Antwerp, Holland, has lately had a clock inserted into each street corner lamp post, whereby the passer is enabled to know the time.

A DISTRACTED HOROLOGIST.—The *Revue Chronometrique* speaks of a watchmaker who sits in his shop surrounded by clocks awaiting to be regulated, and ticking away in a manner understood only by non-regulated timepieces. He suddenly remembers an appointment at four o'clock. The day wanes, and inquietude seizes him, so, rushing out on the street he inquires of the first passer-by, "What time is it, if you please?"

RECENTLY while Dr. A. H. Best, of Savannah, Ga., was silverplating a small article with silver cyanide solution, he used an old Spanish silver coin as anode. The coin was worn perfectly smooth, and had been hammered to twice its original size; yet in a little while after it was put in the bath, every letter and figure became plainly visible. The date, 1800, though defaced so as to be beyond deciphering with a powerful glass, became plain.

AN INVENTOR, whose name was known to but a handful of the present generation, but of whose discoveries was of revolutionary importance has just died—David Thomas, who in 1837 invented the process of smelting with anthracite. Mr. Thomas was a Welshman, born in 1794. His first anthracite furnace was set up at Catasauqua, Pa., and from that beginning the industry has progressed till last year 5,000,000 tons of iron were melted with anthracite. The State of Pennsylvania owes more to this man than it ever owed to William Penn.

THE PARIS correspondent of the *Nature* lately inspected at Feil's workshop, the large flint glass disk which has been cast for the Lick Observatory in California, and purchased by the Trustees for \$10,000. It is now on its way to Clarke's for polishing. Its diameter is 97 centimeters, its thickness 55 centimeters, and its weight 170 kilogrammes. The casting occupied four days, during which eight tons of coal were consumed. The cooling of the mass required 80 days. The optical tests showed that the glass was perfect in all its parts. At the time the correspondent wrote, the crown-glass disk was cast, and the process of cooling was going on.

MAT BRUSHING.—The fine wire matting-brush should run at a speed of about 2,500 revolutions a minute, while brushing, rain water, or sour beer mixed with water, or a juice derived from boiling liquorice wood in water, should drop on the place where the brush strikes the work, and occasionally a piece of sand paper held against the brush. When the wire points are too straight, let them strike over a piece of wire, take care not to hook the points too much, which would prevent matting. Keep the brush in good order constantly, and when the wires become tangled or form knots, they should be separated or knotted brushes cut out. When the work is matted, brush it in soap-water with a soft hair-brush, then rinse in warm water, containing a little spirits of ammonia and caustic potash, lay it for awhile in pure alcohol, and finally dry off in sawdust.

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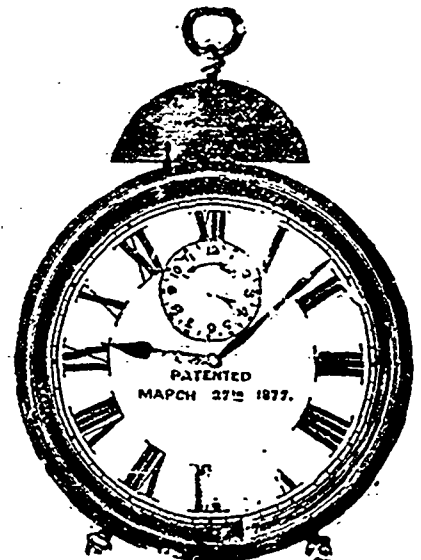
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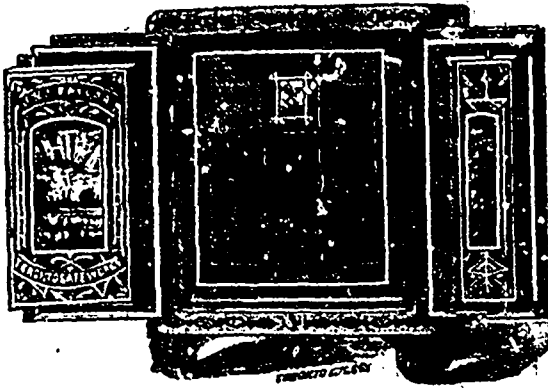
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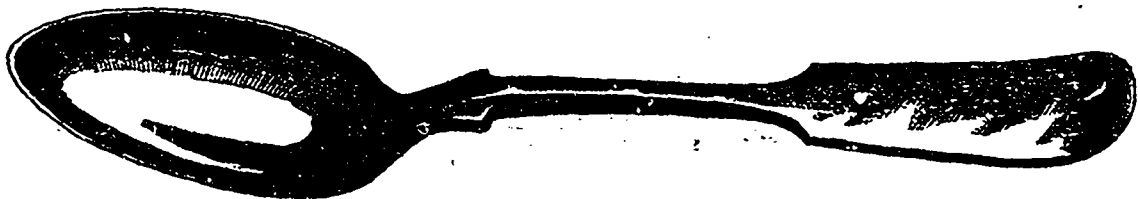
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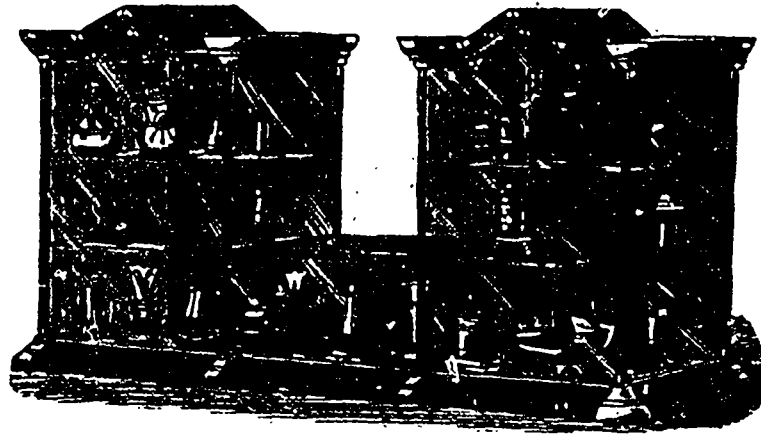
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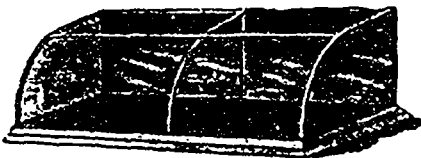
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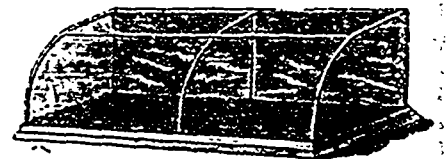
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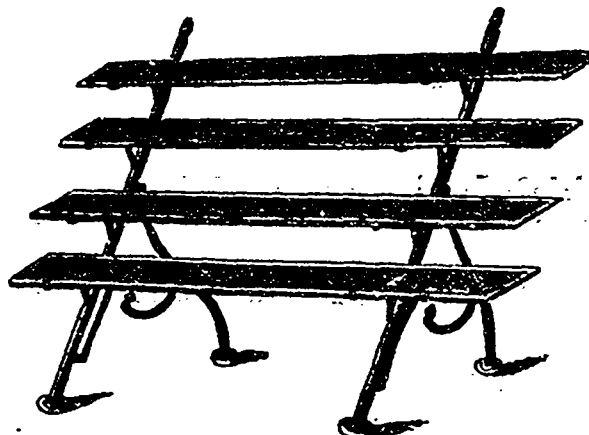
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