

women are not physically adapted, such as hunting, trapping, mining, manning ships, running heavy machinery, farm labor, engineering, and the outdoor exposure of expressmen, conductors, hackmen, drivers, and a long list quite enough to afford men an opportunity to earn the lion's share of wages and keep matters generally under their control. The statistics of New England show that, while men have devised methods for adding to their wealth, the ability of women to earn a livelihood has diminished. In Massachusetts alone there are 50,000 more women than men. The men have rushed to large cities to look after clerkships or to do the counter jumping, while shipbuilding languishes and the famous New England sailors are fast becoming a myth. In the meantime the daughters of the land remain at home, and, having been deprived of the industries alluded to above, as their numbers increase and the ways and means of earning a support decreases, it is natural that they should feel some anxiety for the future, and demand a larger share in the distribution of work. There are more than 2,000,000 women in England who are compelled to support themselves, and with them the struggle is one of life or worse than death. Miss Faithfull established the *Victoria Magazine* in order to advocate the cause of women and give employment to her own sex in the composing room. Her example has been followed in this country, and in many printing offices women are now constantly engaged. This is one step gained, but it ought to be followed by many others.

It has been said that females are more conscientious and naturally honest than men. If that be true, in times like the present, when charges of bribery, defalcation and dishonesty are freely made on all sides, it would be well worth the experiment to see if the gentler sex are better able to resist the temptations that always surround positions of responsibility or trust.

One thing is very certain, the right of woman to her share of honest labor cannot be put down by ridicule or despotism. It must be met fairly and squarely, and now that it has been taken up by our most refined and gifted women, we trust that the question will be soon settled to the entire satisfaction of all parties.

#### ARSENIC COLORS.

Since the publication of our article on arsenic pigments, we have received numerous letters enclosing specimens of calico, wall paper, etc., asking our opinion in reference to their poisonous character. We have had some of these examined by competent chemists, and in all instances sufficient traces of arsenic have been found to prove the dangerous character of the articles presented. From Lee, Mass., we have a sample of calico in which the green band is colored with arsenic, and no washing would render it safe to wear such goods. The misfortune is that even some of the aniline colors are so impregnated with arsenic that they are as dangerous as the older Scheele's green, of which we recently complained. Toy books with green covers are always to be suspected, and in fact the only absolutely safe thing to do is to avoid green colors altogether. The detection of arsenic is so simple that any one can perform the experiment in a few moments. We cut off a piece of suspected calico and immersed it in some strong ammonia, which we had poured into a tumbler; a blue color at once indicated the presence of copper. A drop of the blue liquid put upon a crystal of nitrate of silver turned immediately canary yellow, which reaction denoted arsenic. This is an experiment that anybody can try. To confirm our suspicions we poured some of the liquid into a Marsh apparatus, and easily obtained the well known deposit of metallic arsenic on glass or porcelain. With wall paper a neat and easy way is to put a drop of nitric acid on the green spot, then a drop of ammonia, when the color will turn blue, and on addition of a drop of nitrate of silver, if arsenic be present, a yellow stain will spread in a ring to the outer extremity.

#### FREE MAIL PRIVILEGES ENDED.

Hitherto the right to frank letters of any size has been granted to the President, Ex-Presidents, the Vice President and former Vice Presidents, to members of Congress, the Secretary of the Senate and the Clerk of the House, the privilege extending to free letters not exceeding two ounces and public documents weighing not over three pounds. The governor of any State could forward official documents to the governors of other States. Cabinet officers, their assistants, commissioners and heads of bureaus, the general and adjutant general of the army, the superintendent of the coast survey and his assistant, and chief clerks of departments were allowed free transmission of official but not of private correspondence. Deputy postmasters could send free all documents relating to the business of their respective offices, and those whose compensation did not exceed \$200 per annum in 1846 were entitled to the privilege of forwarding and receiving free all communications not exceeding one half ounce in weight.

This is what is termed the "franking privilege." Devised at a time when the postage on letters varied from five to twenty-five cents, it was a necessary relief to the government officers, whose salaries would have been materially diminished had they been obliged to pay such high rates for their voluminous correspondence from their private incomes. Since the introduction of cheap postage, the privilege has degenerated to a superfluity and latterly to a positive abuse, and although repeated attempts have been made, in previous sessions of Congress, to pass an act for its abolition, the strong opposition which the measure always encountered rendered such efforts fruitless. The evil has gone on increasing; hundreds of tons of letters and documents, together with bundles

of dirty clothing for the wash, boots and shoes and all kinds of stuff belonging to members of Congress and their friends have burdened the mails, being sent in evasion and often in defiance of the laws governing their transmission, and causing, according to the estimate of the Postmaster General, a loss to the country of over three million dollars a year. Even this large sum, at periods, has been greatly exceeded. It is stated that, for the presidential canvass of 1872, if all the franked letters and campaign documents sent out from Washington and other points had paid the usual charges, fully four million dollars would have been saved.

It is a matter of no small moment, therefore, to the nation that the act abolishing the franking privilege has at length passed both Houses of Congress and only awaits the President's signature to become a law. The bill reads as follows:

*Be it enacted, etc.,* That the franking privilege be, and the same is hereby, abolished, from and after the 1st day of July, A. D. 1873, and that thenceforth all official correspondence of whatever nature, and other mailable matter sent from or addressed to any officer of the Government or person now authorized to frank such matter, shall be chargeable with the same rates of postage as may be lawfully imposed upon like matter sent by or addressed to other persons: *Provided,* That no compensation or allowance shall now or hereafter be made to senators, or members and delegates of the House of Representatives on account of postage.

The direct result of the abolition of the frank will be to increase the receipts of the Post Office Department, and thus to warrant the reduction of the rates of letter postage to two cents, a change which the people will everywhere welcome.

#### THE BOSTON FIRE COMMISSIONERS' REPORT.

The Commissioners appointed by the city authorities of Boston to make investigations into the cause, effects, etc., of the great fire have recently published quite a voluminous report. Seven hundred and seventy-six buildings, covering a space of sixty-five acres and assessed at the value of \$13,500,000, were destroyed, together with more than sixty millions of dollars worth of merchandise and other personal property. How the fire first broke out is not definitely stated, but its rapid spread in the building first consumed is considered to be chiefly owing to the faulty construction of the elevator which, like most elevators in Boston, was sheathed with wood and destitute of self-closing hatchways. The committee state that, if the last mentioned appliances had been in the edifice, the flames would not have reached the roof before the engines arrived, and the calamity might have been averted.

There seems to have been considerable delay for want of horses and a lack of water. The fire, it is also stated, was greatly aggravated by the escape of gas from the burning buildings, the water valves, which were believed to be sufficiently powerful to cut off the supply, proving of little value. Sliding valves should always be so arranged that the risk arising from the impossibility of isolating a burning district should never be incurred. The report strongly condemns the action of the authorities in allowing the use of gunpowder for blowing up buildings by citizens or others, not regular officials of the Fire Department. Recommendation is made that a system be arranged, for the future, for using a far more powerful and less dangerous explosive, and for training a number of men to use it skillfully. Dynamite is considered as the best material for the purpose, as its force is so directed as to bring the building down rather than scatter it in fragments. It may be dropped or jarred in any way without danger, and cartridges containing it may be safely cut or broken. A quantity of this substance should be kept constantly in proper places.

The Lowry hydrant is recommended for use throughout the city as giving a better distribution of water. Fire escapes should be attached to all warehouses, and every high building should have a permanent stand pipe of iron capable of having a hose attached to it. Finally, the general use of the most approved forms of fire extinguishers and hand pumps in every house is strongly urged. These would prevent many conflagrations from becoming serious, and they would inspire confidence in cases of alarm of fire.

#### THE SYSTEM OF SNOW PROTECTION ON THE UNION PACIFIC RAILROAD.

The *Chicago Railway Times* gives a graphic pen sketch of the great obstacle presented by snow drifts to the passage of trains on the Pacific Railroad. During the great storm which occurred in the early part of last winter, it is said that drifts thirty feet deep packed full the heaviest cuts as fast as the largest force that could work dug or plowed it out. The snow at other points covered the low bed for miles in a solid mass which had to be cut transversely with trenches, eight feet apart, so that the snow plows could remove it block by block. It packed with such density that locomotives left the rails and ran upon the bed covering the track. Fences, however high, were found of little protection, and cases are cited in which bushes beside the road intercepted the snow, causing it to pile into drifts often completely covering the cars on side tracks.

From the experience gained during last winter, a new system was put in force during the present season which has thus far proved successful. Observations, along the extended portions on which the bed lay from a few inches to three feet above the natural surface, showed the latter high to be the minimum requisite to give sufficient freedom and space for the wind to keep the bed clear of snow. The track was therefore raised and the cuts also widened at the bottom sufficiently to give freedom and space to the snow on either

hand. The sides were sloped 7 in 125, that being the slope which the drifts were noticed to assume naturally. For cuts of moderate depth, this plan has been found to answer without the use of sheds; in the case of deep cuts, however, the widening and sloping of which would be very expensive, snow sheds have been retained or supplied.

In carrying out the plan the locomotive was utilized to draw both plows and scrapers. A massive beam extending across the bed from ditch to ditch was fitted with two heavy plows on each end; and this gang plow, attached to a locomotive, was drawn at a maximum rate of two miles per hour; the locomotive scraper followed, excavating the furrows thus made on both sides and throwing the dirt up against the bed. Each set of these equipments was equal to a force of 200 men; and by this means an aggregate of about 100 miles of the bed of the snow region across and beyond Laramie Plains was raised from three to seven feet. Cuts were also widened—largely by the use of the steam shovel, operated by the locomotive—where their great depth did not preclude widening. To protect the deep cuts, where fencing was deemed inadequate, miles of new and substantial sheds have been built on a plan fully obviating the defects of the old fences; and the latter have been thoroughly repaired, lengthened, or rebuilt of better material. On this work exclusively, a force of 300 men was employed during the entire season. At the shops of the road, the already large equipment of snow plows has been increased and greatly improved. Seventeen plows have been remodeled, and four mammoth ones constructed, weighing from 35 to 50 tons, and costing an average of \$3,000 each.

#### Improvement in Spring Mattresses.

Among the recent patents is that of W. B. Judson, for improvements whereby the frames, slats, and straps, heretofore required on beds of this description, are done away with, and a light, elastic, durable and comfortable bed is produced, at a comparatively low cost. The inventor uses the ordinary standard upholstery steel springs, so well known in the trade. These are united by ingenious little couplings in such a manner as to produce a maximum of strength and elasticity with a minimum of weight. A double bed, 4 feet 6 inches by 6 feet in size, weighs only 25 lbs., although it contains one hundred and ninety-two steel springs. Of course the real value of such beds depends upon the quantity of springs that they contain, and in this respect the Champion Mattress is ahead, as the purchaser gets from two to six times more springs for the same money than most other beds supply. This new bed is known as the Champion Spring Mattress, and the advertisement of the manufacturers will be found on another page.

#### Six Inches of Snow in London.

A fearful storm, accompanied by a heavy fall of snow, occurred in England on the 1st inst. Much damage was done to the shipping on the coasts, while in the interior the roads and railways were extensively blocked up by snow drifts. In London six inches of snow fell, which was an astonishing thing for the cockneys to behold. An inch of snow is as much as they generally see there in a generation. The omnibuses, cabs, and street cars were all obliged to suspend travel, and the only available means of local communication was the Underground Railway, the cars whereof were of course densely crowded.

Last year the London Underground Railways carried between fifty and sixty millions of passengers. It is to be hoped that the New York Legislature, now in session, will authorize the construction of a similar work in this city. It is urgently needed.

#### Luther Tucker.

Mr. Luther Tucker, the editor and proprietor of the *Cultivator and Country Gentleman* recently died in Albany, N. Y. Mr. Tucker was born in 1802, and at an early age was apprenticed to a printer, serving his time and learning that trade. In 1825 he embarked in the publishing business, and in the following year established the *Rochester Daily Advertiser*, the first daily newspaper ever issued west of Albany. Having a strong taste for agriculture, in 1831 he projected the *Genesee Farmer*, which was subsequently merged in the *Albany Cultivator*. At the time of his decease Mr. Tucker was treasurer of the New York State Agricultural Society. He was an able and thorough writer, and an acknowledged authority on all matters pertaining to the farm.

SEVERE COLD AT THE WEST.—During a recent cold snap at Sparta, Wis., the mercurial thermometer became useless by freezing, while the spirit thermometer indicated 45° below zero. Mercury freezes at -39°, but alcohol has never been frozen. The alcoholic thermometer is not, however, to be depended upon for accuracy. In Minnesota, by a sudden change in the weather the thermometer rapidly fell below zero in the course of an afternoon, and a blinding snow storm came on. So sudden, so violent, and so cold was it, that many persons, having but short distances to travel in order to reach their homes, were frozen to death in making the attempt.

ACTION OF GAS IN RUBBER TUBING.—In determining the illuminating power of street gas, it should not be conducted through an india rubber tube, since this diminishes its illuminating power. A series of experiments, made by Zulkowsky, show that the weight of the tube increases. This phenomenon is probably due to the absorption of the heavy hydrocarbons by the tubing.

THE horse disease has reached Omaha, Nebraska.