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Anon, the Schuylkill, sacred to the barge of mirth,
 Its green banks consecrate to pleasure's paths,
 Winds into sight with many a silvery curve;
 And at the breast-work, with a ceaseless voice,
 Rustles the music which its waters carried,
 On mountain wilds remote, where Carben's hills
 Hear in their inmost heart the miner's stroke.
 Behold the mound by art and nature reared,
 "Fairmount" in whose tall top the waters lie
 Lifted as in a great baptismal font;
 The height from whence the river deity
 Pours, from his giant and refreshing urn,
 The stream which slakes a grateful city's thirst.
 But fancy this; for yet no statue there,
 Worthy the place, above his liquid task
 Stands to the fair winds beautiful and bright,
 Gazing upon the city which he loves,
 While the glad city gazes back to him.
 Oh! wherefore rises not the marble pile
 Above this green and consecrated height?
 Not one, but many—one above the rest,
 Looking like Allegheny o'er his hills.
 Lo, how it bathes unnumbered miles of streets—
 A great heart pulsing through far crystal veins—
 Where, but a few short generations since,
 The Indian stretched his lazy, sombre length;
 And the red deer stooped undeterred, and drank,
 Or 'neath the chestnut or the walnut shade,
 Cropped the rank grass at leisure."

34-2 For the Pennsylvania Inquirer.
Washing Pavements.

DEAR SIR—I see with pleasure that our citizens appear to be awakening to the necessity of doing away with the nuisance of flooding the sidewalks with water, as it is practised in this city. I hope that you will exert your powerful influence in the matter, by noticing the evil in your editorial columns, as well as by publishing the remarks of your correspondents. It is time this unhealthy and annoying practice should cease, and there is no reason why all the pavement should not be washed, (if necessary,) before eight o'clock in the morning, and the sidewalks thus left free to the foot passengers, who are now driven into the streets. I hope, also, that the use of water on the pavements will be altogether prohibited in winter. It serves no good purpose, and is attended with much danger to all; but especially to the old and infirm. Not a winter passes without a record of many accidents caused solely by the pavements being thus covered with water, which freezes almost as soon as used.

Some remarks of "A Constituent," upon this subject, which appeared a few days since in the "Ledger," were addressed in the form of a letter to Mr. Baleh, of the Common Council; and it is only by such means that a remedy can be found for the evil complained of. It must be brought prominently to the notice of some individual whose position enables him to act in the matter. We have had talking and writing long enough; the time has come for action, and Mr. Baleh, (or any other member of the Councils,) will entitle himself to the thanks of the community if he will move quickly and properly towards relieving us from what is really one of the greatest evils of the day.

The press can carry this reform if it chooses to act unitedly in its prosecution; and it is not believed that any Editor or any citizen can be found to defend the monstrous annoyance. Do help the movement, Mr. Editor, and let us have dry pavements.
 COMFORT.
 October 26th.

Rearing Railroad Bridge—The erection of a stone bridge over the Schuylkill, below the Falls of Schuylkill, in place of the old wooden structure, progresses rapidly. It was commenced in August, 1863, and after a time the work was suspended. A few months ago operations were resumed and now a large number of men are employed about the bridge in various capacities. The new abutment, which is 34 feet long and 40 feet wide, is almost finished, and two of the arches are approaching completion. There will be 5 piers under the bridge, 10 feet wide and 34 feet long, between which the span is 78 feet with a rise for each arch of 25 feet. While this work is going on, no time is lost to the Company in the shipment of coal to Richmond. The trains pass the same as before the work commenced, without the least risk of any danger. The old bridge is underpinned and braced securely, and as the stone-work is finished the false timbers are removed and the tracks rest on the solid masonry. The stone used in this improvement is obtained from the Connectic, Port Deposit, Conahocken, Leiperville and Falls of Schuylkill quarries. Adjoining the East end of the bridge the immense piles of rock have, in a great measure, been removed, and that part of the city is much improved. The navigation on the West side has been deepened from 3 to 6 feet, and for a distance of 300 yards a wall has been built 10 feet high and 4 feet thick. One of Mr. A. L. Archambault's steam portable hoisting apparatus is used for hoisting stone, mortar and other materials from the ground to the top of the piers and arches, and so admirably does the machine perform its work that many persons go there to witness its operation daily. The machine does the work of more than a dozen men, besides saving an immense deal of time. Another of these portable engines is to be used this week in order to facilitate the workmen in pushing on the alteration.

Rule for calculating the weight of a casting from the weight of its pattern.

It is evident that the weight of a casting stands in the same proportion to the weight of its pattern as the specific gravity of the former to that of the latter, allowing, at the same time, for the shrinking, i. e. contracting of the casting in cooling. The following data are taken from an article of Professor Karmarsch.

Average specific gravity of materials used for patterns: Pine wood, 0.500; oak, 0.785; beech, 0.721; pear tree, 0.689; birch, 0.664; alder, 0.551; mahogany, 0.600; brass, 8.300; zinc, 7.000; tin (3 to 4 tin 1 lead) 7.900; lead, 11.000; cast-iron, 7.250. Compositions, red metal (10 to 15 p. c. zinc,) 8.600; bronze (copper, tin, and zinc, zinc and tin together 15 to 20 p. c.,) 8.450; bell-metal (zinc and tin 20 to 25 p. c.,) 8.900; cannon-metal (tin 5 to 12 p. c.,) 8.760.

The shrinking or contracting in cooling,

- is: for brass, 1 from 21
- for bronze, 1 from 26
- for zinc, 1 from 27
- for cast-iron, 1 from 32
- for cannon metal, 1 from 40

This means that 21 cubic inches of melted fluid brass, will, after cooling, occupy only 20 cubic inches.

If *s* is the specific gravity of the pattern, *S* specific gravity of the casting, *a* the ratio of shrinking, *P* weight of the pattern, and *C* the weight of the casting, the rule is:

$$C = \frac{P \cdot S \cdot (a-1)}{s \cdot a}$$

The following table gives the numbers with which the weight of the pattern is to be multiplied to obtain the weight of the casting nearly:

| The pattern made of | The casting made of | | | |
|---------------------|---------------------|-----------|------------|-------------------|
| | cast-iron | red metal | bell-metal | cannon-zinc metal |
| Pine wood | 14.0 | 15.8 | 16.7 | 16.3 |
| Oak | 9.0 | 10.1 | 10.4 | 10.3 |
| Beech | 9.7 | 10.9 | 11.4 | 11.3 |
| Pear Tree | 10.2 | 11.5 | 11.9 | 11.8 |
| Birch | 10.6 | 11.9 | 12.3 | 12.2 |
| Alder | 12.8 | 14.3 | 14.9 | 14.7 |
| Mahogany | 11.7 | 13.2 | 13.7 | 13.5 |
| Brass | 0.84 | 0.95 | 0.99 | 0.98 |
| Zinc | 1.00 | 1.13 | 1.17 | 1.16 |
| Tin | 0.89 | 1.00 | 1.03 | 1.03 |
| Lead | 10.64 | 0.72 | 0.74 | 0.74 |
| Cast-iron | 0.97 | 1.09 | 1.13 | 1.12 |

If you wish to know the weight of a casting in brass from a pinewood pattern, weigh the pattern, say 3 ounces, and multiply by $15.8 \times 3 = 47.4$ ounces; if cast in iron, $14.0 \times 3 = 42$ oz.

Baltimore, March, 1855.

Brooklyn City News

TRIAL OF THE NEW FIRE ENGINE FOR SAN FRANCISCO.—The new engine, built for Vigilant Fire Company No. 9, of San Francisco, was tried for the second time on Saturday evening, in order to test her powers. The trial came off in front of Firemen's Hall, in Henry street, amidst a large number of interested spectators. The breaks were manned by members of Nos. 3, 5 and 8 companies of this city. The water for the engine was drawn through sixteen feet of suction, and played through fifty feet of hose. Alfred Carson, Chief of the New York Fire Department; Israel D. Velsor, Chief of the Brooklyn Department; Mr. Pine, and Hon. H. A. Moore were the judges. The following is the result:—On the first trial, through an open butt of 2½ inches, the stream was thrown a distance of 63 feet; the second trial, with a 1½ inch nozzle, a distance of 144 feet was gained; on the third trial, with a 1-inch nozzle, the stream was thrown 154 feet; on the fourth trial, with a ¾ inch nozzle, a distance of 166 feet and 7 inches was gained, and the hose burst; on the fifth trial, with two ¾ inch streams, a distance of 144 feet was reached, when hose again broke. The result; was considered highly satisfactory.

[For the Public Ledger.]

The Fire Plugs

MESSENGERS EDITORS:—In passing up Ninth street, yesterday afternoon, I saw men engaged stuffing the fire-plugs with straw, which I think should have been attended to a month ago, by the Superintendent of the Water Works, as he well knows the city is liable for his negligence. Every one remembers the disastrous fire corner of Sixth and Chestnut streets, (the destruction of Hart's and Shakespear buildings,) was occasioned, in a great degree, to this neglect. Then, the firemen were obliged to burn the boxes in order to thaw the plugs. In that case, the city had to defend the suit at the cost of two or three thousand dollars, and had it not been for the evidence of two or three of the firemen, the city would, in all probability, have had to pay for the Shakespear Building, and others, and the losses of the tenants of all the buildings destroyed that night, which would have amounted to at least three hundred thousand dollars. Bearing in mind these facts, it is astonishing that the Superintendent, with a salary of Four Thousand per annum, should leave the straw stuffing to this late in the season. The weather has been so changeable, that on Tuesday, the hydrant was frozen, in the yard attached to the dwelling I have resided in for this 23 years, which has not occurred but once in all that time.

SCIENCE, ART AND DISCOVERY.

EXPLANATION OF WAR TERMS.—A Division consists of a force amounting to several thousand men, and is composed of two or more brigades, as a "Brigade" is formed by several regiments, which "Regiments" consist of a certain number of companies. A proportion of artillery is usually attached to each division, with one or more batteries, so that a division can act as a small army, complete in itself. It is a Lieutenant-General's command, and each brigade is under a Major-General.

The Staff consists of the Generals and their Aids de-Camp, Brigade-Majors, Assistant, Adjutant and Quartermaster-Generals.

When civilians read that a division, brigade or regiment moved in "close column," "open column," or "column at quarter distance," the phraseology, perhaps, conveys no definite idea to the mind. But if they understand that a "close column" of a regiment is formed by the companies of which it is composed being drawn up in rear of each other, so that a solid square can be formed in a few seconds, or a line formed on any named company, by the remaining companies deploying on the company indicated, which commences fast during the movement of the others, the meaning is at once obvious.

A Column at Quarter Distance has an open space between the divisions and companies of which it is composed of one fourth of the ground occupied by each, so that by closing the first and second to the front, and moving up the two rear companies, while the remainder wheel outward by sections, a square, four deep, is formed.

An Open Column is when the companies of a regiment are placed behind each other with intervening spaces, sufficient to allow each company to wheel on its flank or pivot, and thus form into line.

An Echelon Movement is a term applied to an oblique line of march, which movement is accomplished by wheeling the companies a given number of paces before marching, according to the degree of obliquity required.

Guns, a term generally applied to field artillery which mostly consists of six, nine, and twelve pounders, with a few howitzers, which latter are something between a mortar and a gun—half-brother to the former and cousin german to the latter. The howitzer can throw spheres, case shot, small shells, &c.

Shells are hollow cast-iron globes, filled with gunpowder, &c., in which a fuse is inserted, so that when it burns down to the powder an explosion takes place, and the shell bursts, scattering the shattered fragments in every direction.

Guns of Position are larger than field guns, and are mostly used in places where an enemy occupies a defensive position. Being more cumbersome than field guns, they cannot be moved with the same celerity as the smaller cannon, and are therefore not so generally used.

Siege Guns are of heavier metal and larger calibre than either field guns or guns of position, and consequently throw larger projectiles. A "Field Battery" generally consists of six guns with ammunition wagons, and the requisite number of horses to draw them, and the proper number of officers and men to work them.

A Wing of a regiment implies one-half; thus every regiment has a right and left wing. The same term may be applied also to an army.

Outlying Picket, or Picket, is a small body of men, commanded by an officer. Its place is in front of an army, to prevent surprise. Pickets are constantly on the alert, and sleep not. This duty generally commences at sunset, and terminates after full daylight.

Inlying Picket is a similar force, which remains in camp, ready accounted to turn out on the slightest alarm.

A Covering Party generally consists of an officer and forty or fifty men, who take up a position in front of the principal trenches, and protect the workmen employed therein from molestation.

Trenches are long narrow excavations, some feet in depth, the earth from which is thrown up towards the enemy, so as to afford shelter to the troops who guard them during the night against surprise, &c. Duty in the trenches is always unpleasant, and in cold weather particularly so, as the men have to remain quiet, or they would bring a heavy fire on them, and thus increase the danger to which, in trench duty, they are more or less exposed.

Although trench and picket duties are the most arduous that fall to the lot of a soldier, yet, in the British army, the officers and men so employed, even for months, seldom obtain credit or promotion for their services. But the French act very differently to their troops when engaged in such dangerous and fatiguing duties, for we generally hear that General Canrobert has promoted and rewarded with the Legion of Honor many brave men for their gallant conduct in the trenches.

Bastions are bastions of a cylindrical form filled with earth, and which are placed opposite the enemy's batteries, as a protection to the men when they first break ground and commence to entrench themselves.

The term Fortress is applied to a fortified place on an extensive scale; that of Fort to a smaller fortification.

A Bastion has two or more faces of such a form that, when several of them are joined together, a complete pentagon is the result. It is called the system of "reciprocal defence," as one protecting bastion in the pentagon defends another. A ditch, either wet or dry, adds to the difficulty of approach.

Lunettes are small works usually raised in front of sally-ports, &c.; and, when filled with men, are capable of offering considerable resistance.

A Redoubt is a triangular work, generally constructed in front of a more extensive fortification, which it partially protects, and renders an attack on it more difficult.

Embrasures are openings in a work, through which the guns are pointed.

Loopholes are small apertures in a work, through which muskets may be fired.

Redoubt is a general name for nearly every kind of work in field fortifications. Redoubts are sometimes triangular, with flank; sometimes in the form of a star, called a Star Fort. Redoubts for the defence of positions are in general intended to contain only about 50 men, with three guns; but works in the form of irregular polygons are sometimes constructed to contain from 100 to 150 men, and from twenty to twenty-five pieces of artillery, if intended for the protection of any place.