

ing mills in this village. It is the invention of Mr. Roberts engineer. The shaft was cast at the foundry of Messrs. Hamilton & Sons, Toronto, where a cupola had to be built expressly for it, on account of its prodigious size. It measures 32 feet in length, in halves of 16 feet each, hollow in the centre and weighs about 11 tons; it has also the additional support of 4 pairs of large wrought iron girders ingeniously contrived which renders it so pregnant of strength as to seem almost invincible. This shaft is capable of supporting a wheel 20 feet by 20 feet, or of driving 8 or 9 run of stones with all the machinery attached. The wheel is built upon the shaft by means of iron flanges surrounding it, so that the strength of the shaft is not impaired. An immense pit wheel is mounted upon the end of the shaft weighing about 4 tons. The wheel will repay a visit to those interested in the mechanical improvements of the Province. The cost of the shaft delivered here was, I believe, about \$1,100, which must have been nearly doubled in the putting in. Meadowvale can boast the largest and best shaft of the kind on the continent.

A Monster Bridge.

The "widest bridge in the world"—that which spans the Thames from Battersea to Pimlico—was opened on the 20th for traffic. According to the plans of Sir Charles Fox, the new structure has four river spans of 175ft. each, and two land openings at each end of 70ft. The river openings are segmental in shape, and the ribs of wrought iron have a rise of 17ft. The three piers in the river have each at the level of springing of ribs a thickness of 12½ft. and the two abutments are 20ft. each at that level, so that the total length of the whole bridge is about 310 yards. The width of the bridge at rails level is 110ft., wide enough for eight lines of rails, and this width is carried by seven main ribs to each span. The abutments have been carried down to a depth of over 15ft. below low water mark, with the brick work in cement, and the excavations for the abutments, owing to the width of bridge and form of ribs, had to be 125ft. long and 48ft. wide. The piers are supported by brickwork in cylinders, the latter, four in number, being sunk to a depth of 45½ft. below high water mark. Each is 21ft. in diameter, and made of cast iron in lengths of 8ft.; each length composed of eight segments. The length of each pier at the level of the cylinders is 130ft. The weight of iron in superstructure and cylinders, &c., is estimated at about 3,000 tons, 100,000 cubic feet of stone has been used; 16,000 cubic feet of brickwork, and about 300,000 cubic feet of timber. Each of the cylinders has been weighed with a load of 1,000 tons to test the foundations, and at low water mark cast iron girders fixed between them and the existing pier. The new bridge is about 52ft. wider than Westminster Bridge.

A resident of the island of Cuba proposes to use soda-water in the extinguishment of fires.

One hundred and fifteen varieties of Indian corn, each of which has a name, has been sent to the Paris Exposition by Wm. S. Carpenter, Esq., of the American Institute.

Practical Memoranda.

The Composition of Alloyed Metals.

Below are a few of the alloys commonly used in the arts:—

Chinese White Copper.—Copper, 40.4; nickel, 31.6; zinc, 25.4; and iron, 2.6 parts.

Manheim Gold.—Copper, 3; zinc, 1 part, and a small quantity of tin.

Bath Metal.—Brass, 32; and zinc, 9 parts.

Speculum Metal.—Copper, 6; tin, 2; and arsenic, 1 part: or copper, 7; zinc, 3; and tin, 4 parts.

Hard Solder.—Copper, 2; zinc, 1 part.

Blanched Copper.—Copper, 8; and arsenic, ½ part.

Britannia Metal.—Brass, 4; tin, 4 parts; when fused, add bismuth, 4; and antimony, 4 parts. This composition is added at discretion to melted tin.

Plumber's Solder.—Lead, 2; tin, 1 part.

Tinman's Solder.—Lead, 1; tin, 1 part.

Peewee's Solder.—Tin, 2; lead one part.

Common Pewter.—Tin, 4; lead, 1 part.

Best Pewter.—Tin, 100; antimony, 17 parts.

A Metal that expands in cooling.—Lead, 9; antimony, 2; bismuth, 1 part. This metal is very useful in filling small defects in iron castings, etc.

Queen's Metal.—Tin, 9; antimony, 1; bismuth, 1; lead, 1 part.

Mock Platinum.—Brass, 8; zinc, 5 parts.

Ring Gold.—Pure copper, 6½ pwt. s.; fine silver, 3½ pwt. s.; pure gold, 1 oz. and 5 pwt. s.

Mock Gold.—Fuse together copper, 16; platinum, 7; zinc, 1 part.—*Scientific American.*

Expansion of Water by Heat.

BY DALTON,

Temperature.	Expansion.	Temperature.	Expansion.
12° Fahrenheit.	100236	122° Fahrenheit.	101116
22	100090	132	101367
32	100022	142	101638
42	100000	152	101934
52	100021	162	102245
62	100088	172	102575
72	100180	182	102916
82	100312	192	103265
92	100477	202	103634
102	100672	212	104012
112	100880		

How to Polish Wood.

Take a piece of pumice-stone and water, and pass repeatedly over the work until the rising of the grain is cut down. Then take powdered tripoli and boiled linseed oil, and polish the work to a bright surface.

To Gather and Preserve Woods.

Woods should be gathered and exposed in a dry situation, to a heat of from 90° to 100° Fah., until sufficiently dry. The larger kinds are more easily chipped before drying.