

### Hints for Iron Melters.

The man who prepares and charges the cupola in a foundry holds the key to the production of good castings, no matter how successfully the molder may do his work. It is important, then, that all melters should study their business and learn what are the points of success. In the course of an able series of articles on iron-founding, which Edward Kirk is writing for the *Iron Age*, we find the following hints on the work of the melter: The practical and scientific melter is the melter who understands his business and attends to his business; he chips out his cupola, and daubs it up in proper shape; he puts up the iron bottom and sees that it fits close and solid and is properly supported; he puts in the sand-bottom, and sees that it is packed solid and even, and has the proper pitch, without any hills or hollows in it; he puts in the front so that it never blows out, and he sees that the spout is in proper shape; he always has the tapping bars drawn down to a sharp point, so that he can tap with ease, and have the tap-hole large or small; he has his bod-clay thoroughly mixed, and his bod-sticks always handy and in good shape. When he wants to stop-up he takes the bod-stick and sees that there is a bod on it in proper shape; he then puts the bod right over the tap-hole and gives it a sudden downward pressure, and stops the iron with ease. He puts in the shavings to light the fire with, and sees that they are properly spread over the sand-bottom, so as to light the wood evenly—the wood is cut short and split, and every piece is laid in the cupola in proper shape, so as to give the fire the best possible chance to burn and light the coke or coal evenly; he selects a few small pieces of coal or coke that will light easily, and puts them in on the wood; he then puts in the bed. If the cupola has a good draft he puts in all of the bed before the fire is lit, if the cupola has a poor draft, he only puts in part of the bed before the fire is lit, and the balance after the fire has got thoroughly started. He sees that the bed is evenly burnt and level on top before the iron is charged; he charges the iron compactly together, so that it will get the good of all the heat from the fuel; he sees that every charge of iron is level and even on top when all in; he sees that every charge of fuel is properly distributed over the iron, so that it will melt the next charge of iron properly, and at an even temperature; he increases or diminishes the amount of coal or coke in the bed, or between the charges of iron, at the rate of 25 or 50 pounds at a time, until he finds the exact amount required; he increases or diminishes the amount of iron on the bed, or in the charges, at the rate of 100 pounds at a time, until he finds the exact amount of iron that can be melted in that particular cupola with the smallest percentage of fuel; he then continues that charging without any variation; if he gets in a poor lot of fuel, he may increase the bed and charges of fuel a few pounds; or, if the fuel is extra good, he may decrease a few pounds, but always with caution and safety; he watches the direction the wind blows, and notes the effect that a north, south, east or west wind has upon the draft of his cupola, and he lights his fire accordingly, so as to have the bed burnt as near alike every day as possible; he inspects the blast-pipe and tuyeres every day to see that there are no holes in the pipe through which the blast may escape, and to see that the tuyeres are in proper shape, so that the blast will not escape up behind and through the lining, in place of through the stock; he notices the exact effect of the blast upon the cupola, and he knows when he is not getting enough blast, and at once complains to the foreman or engineer; he looks around the shop, toward the last of the heat, and sees or asks the foreman how much more iron is wanted; he then looks into the cupola, and if he thinks there is not enough iron in to pour off with, he throws in a little more, before the stock gets too low to melt it. The practical and scientific melter does everything according to rule, and not by guess, and the foundrymen can depend upon him having good, hot, clean iron every day, if it is possible to make it in his cupola.

**TIPLING NURSES.**—There can be no doubt that nurses' bottles may be worse for children than nursing-bottles. M. Anarion, in the *Archives de Tocologie*, reports two cases in which children, at the breast of apparently healthy and well-to-do nurses, were suffering from convulsions, and in which the children were saved by depriving the nurses of alcoholic potations, in which they were found to be freely indulging. As the *Philadelphia Reporter* remarks, it is a pernicious delusion of nursing mothers and wet-nurses, that, when suckling infants, they required to be "kept up" by alcoholic liquors; and women who are little given to alcohol at other times become, for the nonce, determined tipplers,—this being, perhaps, of all other times that when alcohol is likely to do most harm and least good.

**EGG OIL FOR WOUNDS.**—Extraordinary stories, says the *D.uggists' Circular*, are told of the healing properties of a new oil, which is easily made from the yolk of hens' eggs. The eggs are first boiled hard, and the yolks are then removed, crushed and placed over a fire, where they are carefully stirred until the substance is just on the point of catching fire, when the oil separates and may be poured off. One yolk will yield nearly two teaspoonfuls of oil. It is in general use among the colonists of south Russia as a means of curing cuts and bruises, etc.

**A GOOD RESOLUTION.**—A physician who has passed his three-score years and ten writes as follows: Well do I remember the day and the hour when I made, to me, the great discovery that I could conquer the "blues." I had suffered for a month the most intense mental pain because my business did not go to suit me. I found fault with my wife and children, and nothing suited me. Things were getting most uncomfortable for all of us. I got up one morning as usual and expected to have a bad day, when all at once the impulse seized me as if it had come from the other world, and, straightening myself up to my full might, I said to myself emphatically, "By the Eternal, these miserable feelings have got to go; not once to-day will I tolerate one of them in my mind for an instant." I kept my word, and have done so till now, and find it easy enough to keep the "blues" at bay.

**STEEL INSTEAD OF BRONZE.**—The officers of the royal gun factories, says *Iron*, have been informed that the French government has resolved to discard its present system of bronze field-guns and make its guns of steel rings, puddled and cast. It has been under the consideration of the French artilleryists to adopt the English system of built-up, wrought-iron coils, including the muzzle-loading principle; but this would have required a new and extensive plant of machinery, whereas the transition from bronze to steel can be effected with very little trouble and expense, the substitution of a different metal being almost the only change. The preference of the French for breech-loading cannon is to be gratified by the application to these guns of the "screw relieve," or French system, and two kinds of field-pieces are to be produced—one rather larger than the English 16-pounder and the other somewhat smaller than the English nine-pounder, corresponding in size more nearly to the German than the English artillery.

### Notes on Concrete.

Concrete in this State is widely used for foundations and for other building purposes. The following hints from *Saward's Journal* will be found valuable: Much harm is done, time wasted and annoyance caused by the habit of inexperienced persons picking and poking at cement samples of work, before it has had time to get strength. To such persons quick-setting, light-weight cements would appear to promise good results; but it is now well known by every one practically acquainted with the use of cement, that the well-burned, heavy, finely-ground, slow-setting concretes are the best for concrete purposes.

The water for mixing concrete should be clean. It is possible to destroy much of the strength of cement by using dirty or polluted water. Sea water has not been found injurious, but it is supposed to delay the setting. Respecting the quantity of water to be used there is more danger to be apprehended from using less than from using more than the right quantity. The correct quantity of water is of course sufficient to convert the cement into a thin paste, that shall completely coat and cause to adhere all the particles of the aggregate.

Concrete mixed by hand is preferable, as it is important to have the materials all mixed dry before mixing with water. Crystallization, or setting, begins at once with the addition of the water, and as little time as possible should be spent in thoroughly mixing and placing into the mold, or apparatus, after water has been added. There are many various concrete mixing machines, most of them being unnecessarily complicated; the best being a plain revolving cylinder working horizontally. Concrete mixed in machines is generally over-mixed after the addition of water.

The only liability to defects in cementing on concrete walls or floors, is where two coats are used, and when idle and ignorant workmen, to save themselves trouble, use too large a proportion of cement for the thin finishing coat; then in consequence of the variation in the contraction of the two coats, the outer one is liable to show fine surface or (as they are often called) sun cracks, and even in some cases to peel off. Of course this liability being known, can easily be provided against.

**CLIMATIC CHANGES.**—It would seem that not only is the climate of Iceland growing so cold that grain cannot ripen there, but that of Scandinavia and western Europe is becoming more severe. This is due, it is supposed, to the steady descent of the ice of the far north upon the shores of Iceland. It has been ascertained that the temperature of Greenland was once much more mild than at present. Plants have been discovered in a fossil state there which cannot now show a sign of life. In the Atlantic, also, ice has been found much further south than formerly. Is another ice age slowly making its approach?

**TAKE CARE OF YOURSELF.**—*Hall's Journal of Health* gives the following good advice: A New York drayman or hack driver, considers his horse a part and parcel of himself, and the moment his animal ceases motion in cold weather, that moment he covers him with a blanket. Why this care? He knows that if neglected, the horse will take cold, and that in a day or two, he will most probably die of some form of inflammation about the lungs; yet multitudes of people perish every year, from being cooled off too quick after exercising. More people die prematurely from want of care in any given year, than perish by plague, famine, pestilence and war. The Duke of Wellington died of an over-hearty meal of venison in November. Gen. Taylor was taken from the White House to the grave, by a bowl of fruit and iced milk, on a Fourth of July. It is a good omen, that intelligent, reflecting and humane teachers in different parts of the country, are beginning to make personal health one of the branches of an elementary education. Is it not wonderful that more efficient steps have not been taken in that direction long ago.

**THE BEST PROTECTION FOR TEETH.**—Nothing better than brushing night and morning with tincture of myrrh, using a soft brush. The following is the best tooth powder ever devised:—Take 1 oz. of finely-powdered cuttle fish-bone, 1 oz. of powderedorris root, 3 oz. of powdered myrrh, 3 oz. of cassia, 1 drachm of bol. armeniac, all powdered. Pass all these ingredients, after mixing them well, through a moderately fine sieve, and use two or three times a week.

**OUR IGNORANCE.**—S. D. Goss, M. D., says: "Of the essence of disease nothing is known."