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OUR ROLL OF HONOR.

Almost down to the present century the writers of literature have depended for support upon the patronage of kings and nobles, and their productions have consequently been filled with sycophantic praise of their patrons, with arguments in defense of royal and aristocratic forms of government, and with denunciations of opposing systems. Hence the repetition from century to century of the saying: "Republics are ungrateful"—a saying contradicted in different lands and times by the most conspicuous events of history. The maxim has been uttered with great bitterness by many disappointed politicians, who have sought to use their position in republics for the gratification of their personal ambition; but all, in every age, who have served any community with disinterested public spirit, have awakened in the people emotions of gratitude such as, in the constitution of human nature, it is impossible for kings or nobles to feel. With what filial affection did the people of Athens obey, through long years of unexampled trial, the paternal advice of Pericles! In the long roll of those who have filled the kingly office, what man has shown such gratitude as that which was manifested by the whole people of Syracuse to the devoted and noble Timoleon? What subject ever received from his sovereign such evidences of grateful love and remembrance as those which surrounded the heroic life and followed the bloody death of the first William of Orange? Among the inhabitants of Europe, the people of strongest emotions are they whose homes are nestled in the mountain dells of Switzerland; and the warmest feeling of their hearts is gratitude for the service of Tell. The homage of the people of this country to the memory of Washington, the gifts of fortunes and houses to Farragut, Grant, Sherman and other officers, and the enormous subscriptions to the Sanitary and Christian Commissions for the benefit of our soldiers, are not proofs of peculiar generosity on the part of Americans, they are manifestations of the gratitude which has always characterized democratic communities toward those who have served their country faithfully and well—a quality diametrically opposed to the lying maxim that has been so often and so thoughtlessly repeated.

We are reminded anew of the falsehood of this maxim by the receipt of a pamphlet from the War Department, entitled: "Roll of Honor. Names of Soldiers who Died in Defense of the American Union, Interred in the National Cemeteries at Washington, D. C., from August 3, 1861, to June 30, 1865."

No longer ago than the time of Frederick the Great there were no medical departments in the organization of armies. Sometimes, when a soldier

was wounded, his commanding officer would cut off his leg and sear the stump with a red-hot iron to stop the bleeding; but, generally, if a man was permanently disabled, it was considered best to let him die, in order that the kingdom might not be cumbered with his support. The care which our private soldiers have received has not been, indeed, all that they deserved, but it was the tenderness of maternal love compared with that which has ever been bestowed upon the common soldiers of any other army. This care ceases not even with the termination of life, but smooths the pillow of their last repose, and transmits to their relatives all that affection would know in regard to their final resting place.

"On fame's eternal camping ground
Their silent tents are spread,
And glory guards, with solemn round
The bivouac of the dead."

PURE ALCOHOL FOR BRANDY PEACHES.

Mr. Moore, who owns a distillery situated at the corner of Thirty-ninth street and Tenth avenue, in this city, says that he has drunk imported French brandy, direct from the bonded warehouse, which was proved to his satisfaction to have been distilled at his establishment. The corn whisky was bought of him at 55 cents per gallon, sent to France and doctored by the addition of sundry drugs and by other manipulations, and then returned to this country and sold as genuine French brandy at \$6 per gallon.

The essential ingredient of all ardent spirits is alcohol. In addition, they all contain a large proportion of water, and a very small proportion of essential oils, which give them their peculiar flavor. If the spirit is leached through animal charcoal, these oils are absorbed by the charcoal, and the spirit comes out white and nearly tasteless. There is, however, a foreign substance that is not absorbed by the charcoal, this is fusel oil or amylic alcohol. It is a colorless liquid, of a peculiar, nauseous, suffocating and most persistent odor, and of an acrid taste. As the boiling point of fusel oil is 270°, while that of alcohol is only 168½°, it is easy to separate the two by distillation.

When the peculiar flavor of brandy is required, it must be taken before the rectification with charcoal, but in brandy peaches the flavor is given by the fruit, and for this purpose the purer the alcohol the better. At the Boston Distillery, 122 Elm street, in this city, and probably at other distilleries, a very pure article is sold under the name of spring water spirits. It is alcohol subjected to a second distillation after the rectification by charcoal, in order to eliminate the fusel oil. This spirit is purchased by grocers, diluted by adding its own volume of water, and sold under the name of white brandy, expressly for making brandy peaches. It is most suitable for the purpose, and we should suppose would be most suitable in any case where alcohol in any form is to be taken into the stomach. We believe it is generally prescribed by the homeopathic physicians, and there seems to be no reason why it should not be adopted by the profession generally whenever alcohol stimulus is indicated.

Except under the advice of a physician, it is doubtless best to avoid the use of alcohol in all its forms; but, damaging as it is to the system, it is probably less so than the poisonous drugs with which it is mingled to convert it into "French brandy."

BOILERS OF THE IRON-CLADS.

There are a mile and a half of iron-clads now laid up in the Delaware River, at League Island—a mile and a half of war ships whose ports are closed, whose guns are silent, from whose escape pipes no steam curls upward to the air. These vessels, which have done the country so much service, are practically dismantled, and left to rest in peace until they are again needed.

To the dreamer, the sight is suggestive, but the mind of the practical man instantly reverts to the mechanical details, and to the preservation of them intact. As to the engines of these iron-clads there is no cause for anxiety, but, in regard to their boilers, there is apprehension. Engineers know very well that when a ship is laid up idle the boilers are ruined in a short time, unless great care is taken and

constant supervision given. With all the precaution, it not unfrequently happens that tubes have to be cut out of vertical flue boilers and renewed. The condensed moist air, or "sweat" which collects on the tubes is the cause of this injury, and a remedy for it would save a great many dollars to ship-owners and the country.

It is customary, in some cases, to kindle a fire in the furnaces with the hope of dispelling the moisture by drying it off. This may be a temporary, or an apparent, remedy, but it is of no value, and even if the flues are not removed by reason of corrosion, their endurance is greatly impaired, and the life of them, so to speak, shortened. Where scale deposits at the bases of the tubes then the danger of destroying them is greatly augmented, for the hygroscopic nature of those salts of lime that constitute scale causes them to absorb moisture, which furrows the external surface of the tubes like cutters.

What course has been taken with the boilers of the iron-clads we do not know, but it is probable that they will receive such attention as the nature of the case demands. Cylinder boilers that are blown out are easy to preserve by a coating of oil, but in vertical or horizontal tubular boilers, where the spaces are so small that one can hardly get a finger in, it is a difficult thing.

THE FLOW OF SOLIDS UNDER PRESSURE.

The most common mode of making lead pipe, is to melt the lead and run it into a massive cylinder, which has a hole in the bottom corresponding in size to the external diameter of the pipe; to the cylinder is fitted a solid plunger piston, which has a steel spindle, equal in diameter to the interior bore of the pipe, projecting from its lower end downward through the center of the die in the bottom. So soon as the lead has cooled sufficiently to become solid, but while yet very warm, the piston is forced downward by a powerful hydraulic press, squeezing the lead through the annular opening, and forming the pipe. A better form of the apparatus is to have a hole through the piston and let the spindle or core rise up through this hole from the bottom of the cylinder; on applying the pressure, the lead rises upward through the annular opening and flows over in an endless pipe. With this form of cylinder, pipe may be made from perfectly cold lead, and even from the still harder metal, block tin. Tin, indeed, can be worked only in the cold state, as it crumbles to pieces like sand if manipulated while hot.

It is manifest that the particles of the metals, when pressed through these openings, must slide upon each other in precisely the same way as the particles of water, or any other liquid, while flowing through similar openings. The resistance to motion in relation to each other of the particles of a liquid and those of a solid, seems to be merely one of degree. When the form of a bar of iron is changed, by either hammering or rolling, the particles must slip one over another, though they are not separated sufficiently to destroy their cohesion for each other.

This is an instance of the fading into each other of all divisions in nature. Nothing could seem more sharply defined than the distinction between solids and fluids; but if we change the conditions, if we subject the solid to sufficient pressure, it is found to flow through narrow openings, like the most mobile liquid.

SALES OF PATENTS.

More money is being paid, at the present time, for valuable patents, than ever before. In our reports of the Fair of the American Institute, on another page, will be found a mention of the French self-fastening button; we are told by the capitalists who bought the patent of this little invention, that the sum paid for it in cash was \$125,000.

An ingenious inventor in Ohio has recently made an improvement in machinery for cutting nails. It is stated very directly from the inventor that he sold one-half interest in the patent for \$10,000 in cash, and the purchaser says that he has been offered \$80,000 for it.

A clergyman of our acquaintance has been offered \$50,000 for the United States patent in an invention we lately secured for him in this country and Europe. Another of our customers has been offered \$30,000