

What would the quaint old revelers of that period have thought if, in the midst of one of their drinking bouts, their tallow dips with tow wicks could have been suddenly eclipsed in the splendor of the oxy-hydrogen light of to-day. Verily, both the physical and mental darkness of that age has given way to the light of a brighter and nobler period.

Can it be that in centuries to come, the luxuries of the present will be regarded as contemptuously as we now regard the obsolete appliances of the middle ages?

LIFE-SAVING GUNS.

We find in the *Army and Navy Journal* an interesting article on "Life-saving Guns," a title that might at first seem paradoxical, as guns have been and still are employed chiefly for the destruction of life. The inventions noticed in the article are all of foreign origin. The first one mentioned is that of M. August Deloigne, of Paris. "This gun is a bronze casting, about one foot long 1 1-6 inches bore, and weighing about 66 pounds, without trunnions or carriage. Screwed into the breech is a tail-piece of iron, nine or ten inches long, which, when the piece is to be fired, is thrust into the soil at an angle of about 30 degrees. For long ranges, when firing to windward, arrows of iron are used as projectiles, and for short ranges, or for long ranges when firing to leeward, wooden arrows, which are to be preferred, as they will float. The lower or inner end of these arrows nearly fills the bore

and is covered by metal which expands into a collar or rim, considerably larger than the bore, and coming nearly down to the muzzle when in place, so as to receive the full force of the explosion. Projecting out a foot, more or less from the collar, is the main body of the arrow or 'fêche,' consisting of a round or eight-sided stick of ash, about double the diameter of the bore of the gun. To this is attached the line.

"In the 'Manby mortar,' the use of which has given way to the Boxer accelerating rocket, the weight of the shot is about 1-5th that of the mortar itself, which weighs about 150 or 160 pounds. In the 'Porte Amerres,' lately got up by Deloigne, the wooden arrows are twenty to thirty meters in length, and weigh ten to twenty times as much as round projectiles, although suited to the same bore. The bore is longer in proportion to its diameter, than that of a mortar, it is actually shorter than the bore of a mortar of the same weight. The result of this is, that for the weight and caliber of the new piece, the metal is very thick, and is capable of great resistance, and therefore admits of heavy projectiles with proportionate charges. The power of resistance is greatly augmented by the peculiar mode of charging, and of firing the charge. An empty space is left behind the cartridge, varying according to the weight of the projectile, and the fire is introduced into the forward end of the cartridge.

"In 1865, Mons. Deloigne made some experiments, under the authority of the French Minister of Marine. The guns

used were common 30-pound navy guns, six in number, and as nearly alike as possible. Two were charged as usual, with 7 1-2 kilos. of powder, and an elongated projectile weighing 45 kilos., an excessive charge; one of them burst at the eleventh, and the other at the twelfth fire. Two of the pieces had a space equal to 16 centimeters behind the cartridge of 7 1-2 kilos. and the shot of 45 kilos.; one of them stood 167, and the other 178 fires. The two others had a space of 20 centimeters behind the same charge; one burst at the 108th, and the other at the 162d fire, showing a great gain in firing heavy projectiles by Deloigne's process.

"The present swivels in actual use in the French 'Societe de Sauvetage,' are loaned from the public arsenals, and are not the best arms for throwing lines. They weigh about 80 kilos., and when in use as naval guns, they throw a small round ball, about one pound caliber, weighing about 500 grammes, with 130 grammes of powder. This arm when loaded by Deloigne's system, carries an iron arrow, 1 1-2 meters in length, weighing 5 kilos., with a charge of 140 grammes. No accident from bursting has ever occurred. The new gun, from its extreme simplicity, and cheapness of manufacture, being nothing but a block of gun-metal with a hole through it, with a 'monkey tail' screwed into it, is admirably adapted to the requirements of humane societies and life-saving benevolent associations. When it is to be used on the deck of a vessel, or on rocky ground, it is put upon a rough solid block of wood shaped like a quoin. This block

may also be useful to use on very sandy soil, or anywhere where the heaviest charges are used. As the arrows project considerably from the gun, there is no difficulty in aiming sufficiently well to throw a line across a vessel in ordinary times.

"This system of communicating by throwing lines is not only available to establish communication with wrecks, but will be found very useful for tugs, wrecking vessels, revenue cutters, and vessels of war. The system is carried out extensively in France all along the coast, and at bathing places, and is not limited to any size of arm. The wooden arrow can be used from any gun, smooth-bore or rifle, down to a common carbine out of which Deloigne throws arrows as long as the gun itself, carrying a small line of about 100 yards. Mr. Forbes writes that he saw at Vincennes an arrow of the size of a handspike, thrown from a common 4-pound rifle field-gun, about 300 yards. Across the outer end of the arrow, when it started, were two tough iron straight bolts, 1-2 inch to 5-8 in. diameter, and about a foot long. These bolts stand at right angles to the arrow; the shock at the start bends them to an angle of 45 degrees, and forms a grapnel.

"The 'coulant,' or 'bucket,' consists of five or six turns of line round the arrow, just tight enough to allow the line which overrides these turns by a double loop, to pull it down to the butt of the arrow, and thus steady it on its mission of mercy."

Any project of the people of Washington to raise \$200,000 or \$300,000, or any other sum, to hold an International Exhibition in that city, is very praiseworthy. But appealing to Congress for authority to raise half a million by taxation, for the same purpose, is quite another matter.



WAY STATION IN THE WORLD.