reduction. Copper is finding new and important applications in the new alloys, phosphor-bronze, manganese-bronze, and other compositions.

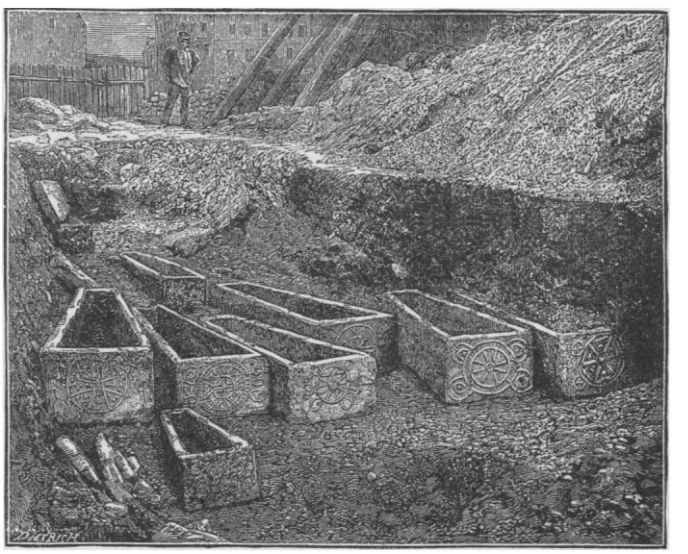
The working of heavy masses is demanding the construction of larger hammers; and it is becoming seen that light steam-hammers are actually injurious to the parts forged by them. Testing-machines are now in daily use, in the hands of the engineer, to determine the exact value of the metals proposed for use in his designs, and to exhibit the strength of completed members.

In bridge-construction, the St. Louis bridge was a novel departure in the use of steel in compression; and the New-York and Brooklyn bridge is an equally successful example of application of wires for suspension over long spans. The new bridge over the Forth exhibits still another modern novelty in its great cantilevers, the only known expedients for successfully spanning seventeen hundred feet with a rigid structure. In railroad and canal construction, the rivalry between the two systems of transportation is best illustrated by the enormous canals, now in progress and proposed, to connect ocean with ocean, and sea with sea, and, as in the case of the Manchester ship-canal, to take ocean-going ships into the interior of the country. This led to the study of harbor-construction, and reference to the methods of making and handling blocks of masonry weighing three hundred and fifty tons each, in the building of their sea-walls. A new and great improvement in the methods of supply of air for respiration, to the workmen sent into the depths during the operations just referred to, is that of absorption of exhaled carbonic acid by a basic salt, and the introduction of oxygen from under compression in small tanks carried by the diver, who is thus enabled to remain under water for considerable periods of time. In tunnelling in red sandstone, a speed of from ten to fourteen yards per day is attained, and of twenty-four yards in chalk. Dynamite and tunnelling machines are making this great progress possible.

Progress in motors has not been rapid during late years. The best of recent double-cylinder non-condensing steam-engines demand but two pounds and seven-tenths of coal per horse-power and per hour; while the condensing-engine has worked down to about a pound and a half. The gas-engine is gradually coming forward as a rival of the steam-engine in small powers; its greater safety, and the reduction of current expenses in various directions, giving it a superiority in some respects. Water-wheels have attained an efficiency of eighty-five per cent; and the turbine, with its high efficiency, offers great advantages in application where the fall is low, or the variation of height of tail-water considerable. In the transmission of power, the introduction of water, steam, and compresed air, sent out from a central station, is a promising direction of progress.

COFFINS OF THE SEVENTH CENTURY.[1]

While digging a trench recently in the rue Salande in Paris, an ancient burial-ground was encountered. The discovery was made among the rubbish and ruined walls of the old Gallo-Roman outskirts at a depth of about one and one-half metres. Nineteen coffins made of plaster, and four or five of stone, were the most interesting things exhumed. The full extent of the burial-ground could not be determined, because it extends beneath some houses. That all



COFFINS OF THE SEVENTH CENTURY.

the sepultures belonged to Christians is probable from the fact that they invariably pointed toward the east, and by the Christian symbols. The coffins belonged to the seventh, eighth, and ninth centuries. Previous to this period they had been made of stone, but those of the epoch under consideration are mostly of plaster. The coffins all had the shape of an elongated trapezoid, being narrower at the foot, and were found filled with dirt, the covers having given way.

The plaster sarcophagi are not unique, since fully two thousand have already been reported as found. Figures are usually imprinted upon the exterior of the head and foot, but not more than one or two in a hundred are ornamented on the long side. The cross emblem of Christianity, inscribed in a circle symbolical of eternity, is the predominant form of ornamentation. There are numerous other ornamentations, but it is difficult to classify them, or to understand their signification.

[1] Abridged from *Science et nature.*