

and descended into the deep water between the reefs. the men in the boat continued to pump without intermission as on the former occasion, but they noticed that he remained longer in the water than usual. Suddenly, to their horror, they saw him floating on the surface at a little distance from the boat. They got to him as quickly as possible, but all was over. The cause of his death will remain a mystery. He was not drowned by the influx of the water, as the diving-dress contained only air. The only explanation to be given is, that the air exit valves became permanently closed in some mysterious manner; but even this seems open to doubt, as the men continued to pump without interruption. Mr. Barrett was only twenty-five years of age when he died; and the enormous amount of valuable work done by him during his brief career, gave promise of his speedily becoming one of the chief ornaments of the science he so ardently loved, and to the too enthusiastic pursuit of which he fell a victim. For three years before his engagement on the West Indian survey, he delivered most of the geological lectures for Professor Sedgwick, and was made by him curator of the Woodwardian museum at that university. His collection of *Radiata* in that Museum is one of the finest in the world. His loss to science will be felt severely, not merely on account of his own personal exertions in the cause of truth, but from the enthusiasm he communicated to those who had the privilege of his acquaintance.—*Chemical News*.

Mess Pork.

The following standard rules, known as "Getty's Directions," are those given for putting up prime mess pork, to meet the requirements of the English market. They are also adopted and made imperative in the contracts given out for army supplies by the United States Government. Quality and Weight of Pigs.—The pigs to weigh from 100 to 160 lbs. each, and to be in good condition, strictly corn-fed or hard pork. For the United States army the weight may be extended to 170 lbs. Parts Excluded.—The head is to be excluded, also the fore-leg up to the breast or brisket, the hind-leg, including the hock or gambrel-joint, and the rump, if the hams are not cut up with the sides. What Constitutes a Barrel of Prime Mess.—A barrel of prime mess pork consists of fifty pieces of four pounds each. If the hams are cut up and put in, there shall not be less than twenty-three side-pieces; if without hams, not less than thirty side-pieces. How to Cut and Cure.—After the pig has been split through the back, cut each side longitudinally into two strips; pack the strips into large casks or vats, and fill up with brine, having saltpetre added at the rate of one ounce to three gallons of brine; leave the strips in the brine for eight or ten days to extract the blood, and for the lean meat to take a pink colour. When ready to be packed into barrels, have each strip carefully cleaned, using a knife and a brush if necessary; cut them into four-pound pieces as nearly as may be: Mess (select the pieces) as indicated, and pack neatly and compactly in layers, with sufficient salt to preserve it. Barrels.—The barrel should be twenty-eight inches long, and seventeen and a half inches over the end (when finished), made of seasoned white oak, free from sap, full bound with

hickory or white oak hoops, and one iron hoop, one inch wide, on each end next below the chine hoop. Theory of Messing.—Pigs averaging say 145 lbs. will work up in messing about as follows:—When the side, including the ham, is cut up there will be twenty-three or twenty-four pieces of side-meat, eight pieces of ham and saddle, and eighteen or nineteen of shoulder and neck to the barrel; excluding the hams, the number of side-pieces will be increased to thirty-one or thirty-two. In no case should there be more than six pieces of the leg part of the shoulder put into a barrel.—*Grocer*.

Cochineal Superseded.

As everybody knows, the various shades of scarlet and crimson with which textile fabrics are dyed or printed were made from cochineal. Cochineal is an insect taken in Mexico, from the broad leaves of the cactus. Ordinarily it would now command an enormous price. It is worth less even now than it was ten years ago. The cause of this decline in the value of cochineal is because of the discovery of a more beautiful dye, called aniline, produced from coal oil. From this coal oil, by tedious process, is produced this aniline, of which, by the way, a single pound costs eighty dollars. Its diffuseness, we believe, exceeds that of any known substance. A pound of it would impart a perceptible tint to a large pond of water. At a factory, the other day, where silk handkerchiefs are printed, we had an opportunity of observing the incomparable superiority of the new colors to those produced by cochineal. Aniline gives every shade of purple, from the deepest royal to the faint lilac, every variety of blue, from the pale tint of the sky to the deepest ultra-marine, and all the gradations of scarlet and crimson of like beauty.—*American Paper*.

Mechanics' Memoranda.

The following convenient rules for mechanics and others, although not perfect in their fractional parts, are correct enough for all practical purposes:—

To find the area of a triangle; multiply the base by the perpendicular height, and take half the product for the area.

To find the area of a circle; multiply half the circumference by half the diameter, and the product will be the area.

To find the circumference of a circle from the diameter; multiply the diameter by 22, and divide by seven; or to be more exact multiply the diameter by 325, and divide by 183.

To find the contents of a pyramid or cone; find the area of the base, and multiply that area by the perpendicular height, and take one-third of the product for the contents.

To find the weight of wrought iron; find the number of cubic inches in the piece, and multiply 2.016 (the weight of one cubic inch) the product is the weight in pounds.

To find the weight of cast iron; find as above and multiply by 2.607.

To find the weight of copper; find as above and multiply by 3.2118; the product is the weight in pounds.