Mixtures for Tempering Small Steel Articles. By mixing 4.75 quarts sperm oil with 4 pounds tallow and 1-4 pound wax, we obtain an excellent material for tempering small steel articles of any shape. By adding 1 pound of resin the mixture will also serve to temper larger articles. The addition of the resin must be done with great care, since if too much is used the articles tempered will become too hard and brittle. After some months' use this mixture loses its value, and when replaced, if the same vessel is used, care should be taken to thoroughly cleanse it of all the old mixture. Another mixture which has been found useful in practice, is composed as follows: 95 quarts spermaceti oil, 20 pounds tailow, 4.75 quarts of oil from beef fat, 1 pound pitch, and 3 pounds resin. The pitch and resin are melted together, and when thoroughly incorporated the other three ingredients are successively added and the mass heated in an iron vessel until all the water has been driven off by evaporation. So much of the mass as is not for immediate use should be kept in hermetically sealed vessels. The use of these mixtures in tempering is as follows: Scythe blades, for example, are heated to the proper temperature and thrust into the oil bath, where they remain until nearly cold. They are then taken out and lightly rubbed with a piece of leather, leaving a thin film of the mixture upon the blades. They are then passed over a light coke fire and heated until the oil takes fire and burns. When hardness is required, only a part of the oil should be burned off. After this the blades are heated to a straw color, which disappears upon immersion in a bath of hydrochloric acid and a subsequent washing in clean water.-Annales du Génie Civil-per Metall. Review, i, 100.

The Rain-Tree of Peru -Accounts from Peru bring the intelligence that, in the forests near Moyobamba City, a tree has been discovered called by the Indians "tamia-caspi," or "rain-tree," which possesses remarkable properties. This wonderful vegetable production, observes the Colonies and India, we are told, absorbs the moisture of the atmosphere, which it concentrates, and subsequently pours forth from its leaves and branches in a perfect shower, and in such quantity that in many cases the surrounding soil is converted into a bog. We are further informed that it possesses this singular power to a greater degree during the hot dry weather, when the rivers are at their lowest and the water most scarce. It has been suggested to the Peruvian Government by a gentleman who has examined these trees that the experiment of their culture in the more arid parts of that country should be made, with a view to the benefit of agriculturists.-The Engineering and Mining Journal, xxiv, 183.

The Antiseptic Properties of Boracic Acid.— The antiseptic properties of boracic acid for the preservation of organic matter have again been tested by G. Polli of Mailand, partly by personal observation and partly in large hospitals. The same experiments were made with the alkaline sulphides and phenole. He found that for the preservation of beer, milk, eggs, urine, and defibrinated blood, boracic acid was much more effective than the sulphides and equally so with phenol. Also as a disinfectant of wounds and a deodorizer boracic acid can be advantageously employed.

The Penetration of Flow of Air and gases through walls of building and even of stone, with wonderful facility has been shown by experiments by Professors Märker and Schultze.

Valuable Mineralogical Discoveries in Canada. —Prof. Vennor, Geological Surveyor, who is exploring the regions of White Fish, Pemchange, and St. Mary's Lakes, on the Upper Gatinian, reports the discovery of an immense mountain of pure crystaline phosphate of lime, showing on the surface hundreds of thousands of tons which will yield 90 per cent. He thinks it is the junction of two great belts running up the Lievre and Gatinian rivers. He believes the Lake Superior silver-bearing rock runs'across the head waters of the Gatinian Rivers. He reports, also, the discovery of a reef.—Eng. § Mining Jour., xxiv, 172.

A NEW USE FOR TADPOLES.—The help of aërial insects is sometimes called in to produce skeletons of small vertebrate animals. But these skeletons generally rather dirty, and one can imagine how it would be better if the operation could be performed under water by means of aquatic animals. This has, indeed, been done at the sea-side, which, however, is not always accessible. M. Lareste has discovered a process which should become general. Tadpoles, he finds, are not (as has been affirmed) phytophagous, or exclusively planteating. They eat organic matters belonging to both the kingdoms, preferring those which are getting into putrefaction. It is possible to habituate them, in a few days, to live exclusively on flesh, without injury to their robust appetite. They will then clean marvellously the bodies of small animals given to them. M. Lareste has shown the Linnæan Society of Bordeaux excellent skeletons of three kinds of lizard, three kinds of snake, two kinds of triton, and a larva of triton, obtained in two hours, the latter being quite an anatomical tour de force, considering the extreme softness of the bones of larvæ of batrachians. The operators were a hundred tadpoles of frogs (Rana fusca and Agilis). The number of tadpoles should be proportioned to the task, and the small animal should be given them skinned. The skeletons should be completed in two to three days at the most, so that the water may not destroy the ligaments. You dress them when still wet, and coat them with a preservative liquid (Smith's or another). The tadpoles should be kept in half darkness, and in a warm place, for they are not very voracious if it becomes cold. It is very easy to procure tadpoles in the country, and the process described should furnish a popular recreation.-English Mechanic, xxv, 133.

Tinning Thin Cast Iron .-- In tinning thin cast iron goods they run the risk of losing part of their substance by the filing or friction necessary for the removal of the oxide with which they are coated, or of twisting out of shape in the furnace if the oxide is removed by heat. They run the same risk from heat employed in the ordinary process of tinning. Where it is of consequence to avoid these evils, the first may be obviated by scouring with sand and a solution of 2 parts sulphuric acid in 8 of water until the rust vanishes. The goods are then washed with rain water and set in a solution of 1 part sulphate of copper in 8 parts water. Here they are left till they have become coated with a faint red coating of copper. which is cleansed with sand and water. They are now brushed with a solution of chloride of zinc and dipped at once into the melted tin. If it is desired to give brilliancy to the tinning. the goods are again dipped, the second time in a second vessel, the molten tin in which is covered with a layer of tallow. The tallow prevents the tin 'from oxidizing during the operation, and the goods come out bright. The coppering of the goods before tinning, facilitates the latter operation, which may be conducted at a heat such that the goods run no risk of warping.-Iron x, 195.