than 40 patients with carbolic acid. 1 part of carbolic acid dissolved in 12 of oil, and a copious application made by means of cotton wool. The result in all cases was favorable, and the danger of infection greatly diminished.

WEAR AND REPAIR OF THE BRAIN.—The notion that those who work only with the brain require less food than those who work with their hands is fallacious, mental labor causing greater waste of tissue than physical. Three hours of hard study wear out the body more than a whole day of physical exertion. One-fifth of the blood goes to the brain, though its average weight is only 1-40th that of the body. This fact alone is sufficient to prove that brain workers need more and better food than mechanics and laborers.

SILICATE PAINT.—A curious deposit of almost pure silica was recently discovered in one of the hills in North Wales. The deposit lies in a basin of volcanic origin, at a considerable level above the sea, and forms the bed of a small lake about two miles in length and one mile in width. Amongst its uses, it is stated that it would be especially suited for producing crystal glass, and in the manufacture of porcelain, especially if the small percentage of oxide of iron were removed from it. At present the only use made of this silica is in the production of paint. For this purpose it is especially suitable, as it mixes freely with the pigments and oils, and is worked with ease. Moreover it entirely resists the action of heat. Added to these advantages, are those no less important, that the paint has no metallic base in its composition, and, when laid on it, becomes extremely hard and polished on the surface.

WATERPROOF STARCH.-A patent has been granted in France for the preparation of a finish, or starch, for vegetable tissues, yarns, &c., which is not soluble in water, and which, therefore, when once applied, will remain throughout several successive washings. The articles are first properly starched, and then passed through a bath of chloride of zinc, (about 60 deg. Fahr.), by means of which such a change is produced in the fibre and the starch that the latter resists the action of the water in the most thorough manner. A bath of three parts of sulphuric acid and one of water may, it is said, be used instead of that of chloride of zinc.

BRICK-DUST MORTAR.—In the Spanish dominions ordinary brick-dust, made from hard-burned, finely-pulverised bricks, and mixed with common lime and sand, is universally and successfully employed as a substitute for hydraulic cement. The proportions used in general practice are one of brick-dust and one of lime to two of sand, mixed together dry, and tempered with water in the usual way. The Romans, our readers will remember, used powdered bricks in their mortar. Its presence serves to distinguish Roman work in England.

GUANO DEPOSITS.—The guano deposits on the Chincha Islands, which were in some places upwards of 100 feet thick, and generally admitted to be the excreta of birds, are now suspected by Dr. Habel and Prof. Edwards to be an accumulation of the bodies of animals and plants—most of them of marine origin. According to a notice in the *Mechanics' Magazine*, it appears that the anchors of ships moored in the vicinity of the Guano Islands frequently bring up guano from the bottom of the sea. This is thought to be opposed to the idea of the bird origin of the deposit, and to refer it to those infusorial strata which are found in various parts of the world.

A HARD CEMENT.—A workman employed to repair the steps leading to a garden made use of Portland cement mixed with finely divided cast and wrought iron filings, or fragments, in place of sand. The result is stated to be that the mass has become so hard as to resist fracture, either with the hammer or pickaxe.

A NEW METHOD OF IRON-PLATING.—Captain M. Tweedle, R. A., has addressed an important and valuable suggestion to the Royal Artillery Institution for iron-plating a cruising ship so as to avoid the disadvantage appertaining to iron vessels generally, and provide a comfortable seagoing ship, fairly capable of holding her own with an ironclad on an emergency, and yet almost unsinkable. His plan is to spring an arch or dome of iron inboard from the sides of the ship below the water-line, the top of the dome rising a little above the surface, covering in the engines, the lower-deck and store-rooms being divided into a series of water-compartments. This, he contends, will give additional strength to the ship, and, however much her hull might be knocked about, she could not sink, unless the arch were penetrated, which, owing to its shape, would be nearly impossible.

SCIENCE AND COMMERCE.—A clever application of science to commercial purposes has been made by an Italian gentleman, M. Eugenio de Zuccato, of Padua. By means of the invention, any number of copies of a manuscript or design, traced upon a varnished metal plate, may be produced in an ordinary copying press. To the bed and upper plate of a press are attached wires leading from a small battery, so that, when the top of the instrument is screwed down, the two metal surfaces come into contact, and an electric current passes. An iron plate resting upon the bed of the press is coated with varnish, and upon this surface is written with a steel point any communication it is desired to copy. The letters having thus been formed in bare metal, a few sheets of copying paper are impregnated with an acid solution of prussiate of potash, and placed upon the scratched plate, which is then subjected to pressure in the copying press. An electric current passes wherever the metal has been left bare, (where the writing is, therefore), and, the prussiate solution acting upon the iron, there is found prussiate of iron, or Prussian blue characters, corresponding to those scratched upon the plate. The number of copies that may be produced by this electro-chemical action is almost unlimited, and the formation of the Prussian blue lines is, of course, instantaneous.

PER SALTUM.—Nantwich, in Cheshire, has for some years past been gradually sinking, owing to the withdrawal of the lime from the subterranean salt lakes which underlie the town. The slip this winter occurred about the same spot where similar landslips happened one or two years ago. The pit, says the *Mechanics' Magazine*, is about 300 yards in circumference, about 100 feet deep, and its sides are almost perpendicular. The inhabitants much fear that the town itself may ultimately suffer, not by gradual decadence—that they are used to (it is not uncommon to enter a house from the street into what had formerly been the first floor)—but by one of these sudden collapses.