is completely arrested. Parisitic and earth worms also are easily killed by a solution containing one half per cent., or by exposure to air containing but a small proportion of the acid. An injection of water containing one half per cent. of the acid brought away from a child a large quantity of *ascarides lumbricoides*, all dead. A stronger solution kills the eggs of ants and earwigs, and larvæ of butterflies, caterpillars, &c.

The author has studied the action of the acid on the mammalia, and mice, guinea pigs, dogs and horses, as well as men.

Action on the Human Skin. — Immediately after the application of a thin coating of the pure acid, a sharp smarting is felt, which lasts about an hour. The epidermis becomes wrinkled, and in a short time the formation of a white body may be remarked wherever the acid has touched. This white colourization results from the action of the acid on albumen; it disappears by degrees, and is replaced by some congestion, which lasts about twenty days. This congestion presents all the characters of an intense inflammation, being attended with redness, heat and swelling. If a small piece of the epidermis (which appears raised as in a blister) be stripped off, no serum escapes. The epidermis becomes detached by degrees, and when the exfoliation is complete a brown spot remains, which testifies for a long time to the energetic action of the acid. After a number of experiments on his own arms, and the arms of his friends, M. Lemaire assures us that the smarting never lasts longer than an hour. The redness of the skin endures about twenty days, but the inflammation never extends beyond the part to which the acid has been applied.

Action on the Mucous Membrane.—The action of the pure acid on the mucous membrane is, of course, analogous to its action on the skin; acute smarting, shrivelling up of the epithelium, and a milky colouration being observed. The smarting does not last so long as on the skin, especially on such membranes as produce an abundant secretion; and the epithelium quickly return to its normal condition.

Action on the Respiratory Organs.—From experiments on mice and horses, the author concludes that the higher animals may breathe the diluted vapour of the acid for a long time without discomfort or danger.

Mode of Action.—The general fact resulting from the author's experiments is that phenic acid acts on plants and the lower animals as a violent poison.

When the action of the acid on a semi-transparent leaf is examined, it is easy to prove that it coagulates albumen, and that the parenchyma and epiderm are contracted. This explains how it is that microphytes and microzoons die so quickly in its presence. All animals with a naked skin, and those which live in the water, die sooner than those which live in the air and have a solid envelope. The difference appears to result from the power of absorption, which is much greater in the former than the latter.

When frogs are placed in a saturated solution (5 per cent.) of the acid the skin shrivels and becomes milky from the coagulation of the albumen. The branchiæ of fishes also become white. This coagulation of albumen led the author to suppose that the death of the animals resulted from the coagulation of their blood. To verify this supposition, he examined, under the microscope, the action of the acid on the branchiæ of the larvæ of the salamander, in which the circulation of the blood is easily seen. He then observed that although the solution arrested the circulation instantaneously, it altered neither the form nor appearance of the blood-globules. All the change consisted in their immobility. When the blood is coagulated by mineral acids the form of the globules is changed. With carbolic acid nothing of the kind takes place. Besides this, a post mortem examination of a dog and horse proved that the blood was not coagulated. Phenic acid, then, does not kill by producing coagulation of the blood! Its action on the blood globules, however, leads M. Lemaire to think that these globules are living beings.

Insects exposed to a weak dose of the acid become asphyxiated, but they soon recover in pure air.

When a gramme or two dissolved in water are administered to a dog, the animal falls as if struck with lightning, but soon recovers again. The sudden fall the author ascribes to violent pain, and the rapidity with which it is absorbed and carried to the nervous centres. It is on the nervous system, then, that phenic acid principally acts.

DISINFECTION OF VESSELS.

Heat is the most speedy, certain, powerful, and practicable disinfectant known to science, In Egypt the plague is destroyed by the heat of midsummer. Putrefaction is arrested; mummies are preserved in the burning sands for an indefinite period. And in climates where epidemic diseases are most likely to prevail, they rarely do so at an average temperature above 85° Fahrenheit. Dryness doubtless has something to do with this. In tropical marshes, "a fire in the camp" is proverbial for its disinfecting properties. Nevertheless, heat appears to be equally efficacious in the form of steam and hot water. The writer of this paper has a lively recollection of an intermittent fever which he shared with two of his messmates in the ward-room of a small naval steamer, more than a dozen years ago, while far out at sea and without having had any communication with the shore to account for it. On searching for the cause, putrefying vegetables were found in the mess-lockers under the bunks of the parties affected. The removal of these and a thorough cleansing with *hot salt-water* put an effectual stop to the disease. Sausage poison, which has killed many persons in Germany, is effectually destroyed by boiling water.

Impressed with facts similar to these, Dr. Wm. Henry, F. R. S., of Manchester, as long ago as the year 1824, instituted a series of experiments to test the effects of heat upon the "*contagious element*" of small pox. Contagion is sometimes used synonymously with infection. It has, however, a different signification. The meaning of contagion is the transmission of disease from one person to another by contact: direct, as by the touch of the diseased person, or indirect, by contact with things that