THEINE OR CAFFEINE.

It is one of the triumphs of chemistry to have furnished a clue to the cause of the predilection of so large a portion of mankind for tea, coffee, and cocoa, by demonstrating that the two former contain an active principle identically the same in chemical composition, and that a very similar principle (theobromine) exists in cocoa. From the similarity of composition between these principles and taurine, "the nitrogenized compound peculiar to bile," Liebig supposes that their chief use in the economy is to contribute to the formation of bile,—that they serve as "food for the liver,"—though, if I understand him right, he admits that they are also "remarkable for their action on the brain, and on the substance of the organs of motion," (Animal Chemistry, 1842, pp. 181, 189). However this may be, there is no more familiar observation in dietetics than that strong tea and coffee are apt to produce vigilance, and, if taken habitually, to engender hysterical and hypochondriacal complaints. It will be seen that popular experience in this respect is supported by the result of a direct appeal to experiment with the proximate principle.

A grain of caffeine (theine) pulverized and diffused in water was put into a frog's mouth. The animal seemed almost immediately to lose a portion of its previous vivacity. In twelve minutes it had a general convulsion, after which the hinder extremities remained half extended, as if from inability to gather them up. In about half an hour it lay stretched out at full length, not moving when undisturbed, but thrown into violent convulsions by a sudden shock, as if it were under the influence of strychnia. In an hour there was no outward sign of life, the body was rigid, and the blood stagnant in the vessels of the hind feet. The muscles generally were found to be excitable by galvanism.

In another experiment, with but half a grain of caffeine, the phenomena were similar, but the animal recovered.

Next, half a grain diffused in water was injected beneath the skin of the left leg of a frog. In six minutes the animal began to drag the foot, and in half an hour the loss of power extended to the leg. The animal was now slightly agitated by a shock. It soon became unwilling to move, and when disturbed, was thrown into convulsions. In these circumstances it underwent a gradual failure of the vital powers, without appearing to be deprived of consciousness, for nearly twenty-four hours, when no movements could any longer be excited by irritants. The circulation had ceased in the left hind foot, but was proceeding sluggishly in the right.

The muscles being now exposed, presented universally a peculiar purple tint, very different from their usual appearance after death. In the left thigh and the whole of the opposite limb they contracted under the frog-battery, but in the left leg they remained perfectly quiescent. A repetition of the experiment gave very similar results.

The active principle of tea and coffee is therefore a narcotic poison to the frog. In point of destructive energy it is far superior to morphia, and may almost be compared to strychnia and conia. The part of the nervous system affected seemed to be principally the spinal cord, as there did not appear to be any decided loss of consciousness, although in this matter it is difficult to judge in the frog.

The substances here stated to have been submitted to experiment comprise the mineral acids, alcohol, ether, chloroform, hydrocyanic acid, opium, morphia, codeia, narcotine, hyoscyamus, atropia and its sulphate, nicotina, aconita and its muriate, conia, and theine or caffeine. Many others have been tried, but I have not yet been able to feel so well satisfied with regard to them. As to those results which are given, I believe they are likely to stand the test of examination, the present details being little more than an abstract, which conveys no adequate idea of the time and labour bestowed on the investigation. Leaving out the mineral acids as included among the chemical irritants, the remaining substances, all of them belonging to the class of so-called dynamical agents, have been found to be capable of producing local paralysis. Of these, the local action of aconita, hydrocyanic acid, and opium, was already known. It is obviously a question whether some of the bodies enumerated do not paralyze the limb chiefly by the influence of their chemical affinities; but this is a subject for a separate inquiry.

CORONERSHIP FOR THE NORTH-EASTERN DIVISION OF SOMERSET.—As the Lord Chancellor has issued his writ for the election of coroner for this division of Somerset, it is to be hoped that a fully qualified medical man will be elected to fill that important office.

CASE OF GUN-SHOT WOUND OF THE LEFT SHOULDER, TERMINATING IN DEATH AFTER A PERIOD OF ELEVEN WEEKS.

BULLET FOUND IN THE LEFT VENTRICLE OF THE HEART.

By JOHN PIERCE BOWLING, H.E.I.C., Bengal Medical Establishment.

ISRAEL H—, aged twenty-nine, private in Her Majesty's 80th Regiment, received into the field hospital at Rangoon, on the 12th of April, 1852, having been wounded by a musket-shot in the left shoulder, just below the coracoid process of the scapula. The ball had penetrated the chest deeply, in a direction downwards and inwards, air issuing from the wound at each expiration. There had been no great amount of hæmorrhage, and the symptoms at the time of his admission were by no means urgent. Water-dressing was applied; and, after a few hours, reaction set in, with fever, dyspnoea, quick, strong pulse, and pain in the chest. These symptoms, however, speedily succumbed to bleeding, tartarized antimony, and other antiphlogistic measures, and he continued to do well for several days. On the 28th he suffered a well-marked rigor, which was succeeded by hectic, with small rapid pulse and other appearances denoting suppuration within the chest. Under the use of bark and moderate stimulants, he had sufficiently rallied to be removed, on the 4th of May, to Amherst, a delightful spot at the mouth of the Moulmein river, where hospitals had been established for the reception of the sick and wounded.

On the 18th of May the patient expectorated a large quantity of pus and a small amount of fluid blood, the pus amounting to nearly a teacupful, healthy in character. After this he rallied considerably; the external wound was allowed to heal, and he appeared for some short time to be gaining strength under the use of tonics, sedatives, and nutritious diet, the pulse becoming firmer and less quick; although dulness on percussion over the whole left side of the thorax, the absence of respiratory murmur, with cough, slight dyspnoea, and wasting, denoted the mischief that was going on within. During the whole of the period the pulse was neither irregular nor intermitting, neither did he at any time complain of pain over the region of the heart, nor palpitation.

The improvement that took place was but temporary, and he continued to sink and waste, and died worn out and emaciated eleven weeks after the receipt of the injury.

Post-mortem appearances six hours after death.—In the left lung was the cavity of a very large abscess; it contained a considerable quantity of pus, and its whole structure was so disorganized that the course the ball had taken could by no possibility be traced; but on opening the left ventricle of the heart, the bullet was found lying wedged in its apex. The pericardium was entire, and the ball could only have reached by a slow course the position in which it was found, through the pulmonary vein, first into the left auricle, from which it had dropped by its own weight into the ventricle. The other organs of the body were in a healthy state.

BIN-IODIDE OF MERCURY IN SYPHILIS.

By W. G. MAXWELL, M.D.

In obstinate or neglected long-standing chancres, with or without buboes, I find the above medicine arrest or *check* the progress of the disease within twenty-four hours. I give it in one-sixth of a grain dose, and repeat it several times a day, or rather till some sickness, or griping and temesmus, (with frequent mucous green motions,) are induced. I then omit the medicine for the time; next day smaller doses are given, or I may then give the iodide or *proto iodurate*. Tonics, decoction of sarsaparilla, &c., are given liberally at the same time. I find the tolerance of the medicine, when first given, to be an *unfavourable sign*; and that, in such cases, the syphilitic virus (taint) has been engrafted on a confirmed strumous or tubercular habit. In these cases the prognosis is always unfavourable.

India, 1852.

THE LA PLATA.—This vessel has been released from quarantine; Mr. Wiblin, the medical inspector, having reported her free from contagion. Since her departure from St. Thomas, nine fatal yellow fever cases (including the two deaths since the release of the passengers from quarantine) took place on board. The mortality included her commander, Captain Elliot, the purser, &c. Mr. Thomas B. Philips, the ship's surgeon, states that three cases which were put under the title of fever, were purely accidents which befel the men doing their duty. The thermometer during part of the voyage was 130 in the sun, and 95 in the shade.