

tions in the chest. Blisters applied over chronically inflamed joints and tendon sheaths are valuable. Dry or wet cupping though not used so much now as formerly, is useful in obstinate rheumatic pain. For certain severe chronic pain in joints nothing is so effective as actual cautery of the skin over the joint.

DRUGS.—The many different substances used for the relief of pain are used in various forms of pills, powders, and liquids by mouth; as suppositories and injections by rectum, and as inhalations. There are two classes of those drugs—analgesics, which simply relieve pain, and anaesthetics which altogether suspend sensation, and, in the case of general anaesthetics, consciousness also.

Among the analgesics, salicylic acid is one of the most generally useful, in one or other of its various combinations, salicylate of soda, acetyl-salicylic acid, and so on. The ease which it gives in the pain of rheumatic fever is notable, but its use is not limited to that disease.

A number of valuable analgesics are derived from coal tar, phenacetin, phenazone, acetanalid, and several others. All of them are useful in headaches and the aches associated with the onset of acute febrile conditions—in fact is all toxic pain.

Chief among the pain relieving drugs are opium and its derivatives, morphia, heroin, nepenthe, etc. In addition to their pain reducing properties, these drugs are sleep producers. For postoperative pain, the pain of severe injuries, of gall stones, renal colic, and late cancer, nothing can be relied upon to abate suffering as opium and its relatives. It may be used by mouth in pills, powder, or solution, but the most certain, simplest, and quickest method is by hypodermic injection of morphia.

Anaesthetics are divided into two groups, general and local. General anaesthetics act upon the brain, producing unconsciousness and abolishing the perception of all sensations including that of pain. But it must be remembered that the nerves still carry the sensory stimuli to the brain, though the brain does not consciously receive them. This is of importance in relation to shock, which can still occur under general anaesthesia. Ether, chloroform, nitrous oxide, and ethyl chloride are the common general anaesthetics. Each of them has its special

field of usefulness—ether for general use, chloroform in labour, nitrous oxide for very short operations, and ethyl chloride when a short anaesthesia rapidly induced is required. None of them are free from danger, nitrous oxide being the least dangerous, and ethyl chloride the most. With the exception of chloroform in labour, general anaesthetics are not given for the relief of existing pain, but for the avoidance of pain which must occur in the course of operations or manipulations which would necessarily be painful, and perhaps impossible on that account.

Local anaesthetics paralyse the sensory nerves, but do not affect the brain. There are now many local anaesthetics, chief among them being cocaine, eucaine, novocaine, tropocaine, stovaine, and hydrochloride of quinine and urea. They are applied locally to abolish sensation in the area of operation. They may be used by painting on the surface of a mucous membrane, as in the eye, nose, or throat; by injection at the site of operation—infiltration anaesthesia; by injection into the nerve trunk or trunks supplying the site of operation—nerve blocking; or by injection into the spinal canal, so that they act upon the spinal cord producing anaesthesia of the whole body below the site of injection—spinal anaesthesia.

Local anaesthetics take a good deal of time and trouble to produce the best results. Used in large quantities they cause dangerous circulatory depression. Consequently their use is limited chiefly to minor operations on superficial or easily accessible parts of the body. But as they prevent painful impressions from reaching the brain, they diminish shock. This fact may be taken advantage of in operations which are expected to cause much shock, to combine local and general anaesthesia.

PREMATURE RELIEF OF PAIN AN OBSTACLE TO DIAGNOSIS.—Except in cases of urgency or where diagnosis and treatment are impossible, measures for the relief of pain should not be employed until it has been discovered what is the cause of the pain. Otherwise the abolition of an important symptom may make it impossible to determine the condition and give proper treatment. The classical example of this is the administration of opiates in abdominal pain of unknown origin. If morphia be