

in which the morbid process is being carried on, and at the same time to aid in the removal of heat as fast as it is generated. The former we accomplish by the administration of various antipyretics, as quinine, veratrum viride, aconite, digitalis, etc., while the latter is best accomplished by abstracting heat from the body by the external application of cold. Heat generally produces such violent action in the circulatory organs as to rapidly exhaust them, and render them incapable of bearing further depression by therapeutic agents, so that many drugs acting as most of those just named are inadmissible. Their action, moreover, is often too slow to render them availing in the preservation of life.

It is under these circumstances that the rapid abstraction of heat becomes of paramount importance in affording relief or in saving life. We know that a temperature of 107° F., or higher, is incompatible with life if continued for even a comparatively short time, whatever the disease may be, and we know of no internal remedy that will reduce it to the health standard as quickly, safely and certainly as cold applied externally.

If a well-developed child, weighing thirty pounds, and having a temperature of 106° F., be placed in a bath of water at 50° F., there will be no perceptible fall in the axillary temperature for three minutes; the mercury will then begin to fall very slowly, and in about fifteen minutes will stand at $98\frac{1}{2}^{\circ}$, falling much more rapidly the last three degrees. The rapidity with which the temperature falls is not the same in every case, and cannot be prognosticated; it is well, therefore, to always keep a clinical thermometer in the axilla, and remove the patient from the water when the mercury has fallen to $99\frac{1}{2}^{\circ}$, as there will be a further fall after removal from the bath.

The temperature may be reduced with almost equal facility by sponging the whole body with whiskey or brandy, and fanning the wet skin at the same time to promote evaporation. This method, indeed, is often preferable, as cold water is apt to alarm young patients and is unpleasant. At first it is better to have the bath tepid, and rapidly cool it by the addition of cold water or ice until our object is attained. This precaution is unnecessary when from any

cause the patient is insensible, which is generally the case in infantile convulsions.

The most notable changes that accompany the fall in temperature are those pertaining to the nervous and circulatory systems. The pulse becomes less frequent, slower and softer, nervous excitability is allayed, muscular spasm ceases, sleep is often induced while the patient is still in the water, and is almost certain to supervene on removal from it.

In some cases, the temperature having been thus reduced, there is no subsequent rise, the case progressing to rapid recovery; but in many diseases it is necessary to repeat the bath at such intervals as will be indicated by the rise in temperature.

By keeping the patient in a cool, well-ventilated room, and resorting to the use of the sponge bath and the use of a fan, the repetition of the cold bath will only be required at long intervals, and may not be required at all. Experience has led me to the conclusion that children are more intolerant of increased temperature than adults, and that it is in febrile diseases of the former we can accomplish most by the use of cold externally.

The febrile diseases in which I have found this treatment to be most useful are diarrhoea, dysentery, scarlet fever, acute bronchitis and convulsions complicating febrile action. I have also treated acute pleurisy, pneumonia and cerebro-spinal meningitis in this way, but not a sufficient number of cases on which to base any conclusions. I may say, however, that the cases of pleurisy seemed to be benefited, but the cases of pneumonia and cerebro-spinal meningitis terminated fatally, although not, I believe, on account of the cold water treatment.

A large number of children die every summer from acute diarrhoea. The attack usually comes on suddenly, the stools are frequent, the stomach sick and the temperature high. If seen a few hours from the beginning of the disease the child will be found restless and pained, the stools offensive and unnatural in color, the features pinched and full, the eyes sunken, and often the feet and hands cold. The patient moans and moves the tongue about the mouth in a peculiar manner, and often makes efforts to vomit when no food or drink has been taken. If the case be allowed to go on, the pupils become contracted, the breathing labored,