

cardiac muscle, consequent on long continued high temperature, or to the action of some blood poison developed by the disease itself, or to over-distension of the right side from the obstruction in the lungs. Each of these causes must be treated, as best it can be, by cardiac tonics and diffusible stimulants. Of the cardiac stimulants, digitalis, strophanthus, and caffeine are the most useful. Digitalis wants watching, for it is cumulative in action, and may produce more slowing of the pulse than is wanted. Strophanthus is less to be relied upon. Caffeine combined with nux vomica is the most serviceable for prolonged use. To meet any sudden emergency, such as collapse, ether and alcohol by the mouth, or subcutaneous injections of ether or strychnine, are in common use. Adrenalin, or camphor dissolved in sterilized oil, has been administered subcutaneously. Musk and camphor may be also given in pill form.

*Bleeding.* When the lungs are greatly engorged, the patient cyanosed, and the right heart over-distended, great relief may be given by bleeding. But the bleeding must be free and rapid. Several ounces—a pint or a pint and a half—should be withdrawn from a large vein rapidly. As the blood flows, the color improves, the heart's action becomes less labored, and the urgent symptoms may pass off. The loss of so much blood leaves the patient weak, and such a bleeding is, therefore, suitable only for special cases. The typical case is that of a young, full-blooded, healthy, well-fed adult, with florid complexion and well-developed muscles. Bleeding is contra-indicated in weakly, unhealthy, anæmic persons, in the very young or the aged. In properly selected cases free bleeding is of great use, and has, I have no doubt, saved many lives, but in private practice prejudice often prevents its employment when it would undoubtedly do good.

Bleeding is sometimes spoken of as useful on theoretical grounds, because with the blood there are removed some of the toxins upon which some of the grave symptoms are supposed to depend. This reason does not appeal to me, and I think such a theory mischievous in practice, as likely to lead to bleeding in unsuitable cases. Dermatecclisis, or the subcutaneous injection of large quantities of water or normal saline solution, has been advocated as another way of diluting the toxins, or assisting in their elimination; but it does not commend itself to me, for it does not seem to be based on sound theory.

*Stimulants* are not required in an ordinary case in the healthy and young, but will probably be necessary from the first in the aged and weakly. In persons of alcoholic habits, or where nerve symptoms or marked asthenia develops, stimulants have often to be given freely. They may even be our sheet anchor, for as pneumonia, though a very intense fever, is of short duration if life can be preserved for a few days till the crisis comes, recovery will take place. Alcohol in some form is the stimu-