

practitioners are beginning to learn that constitutional treatment is of as paramount importance in diphtheria as in scarlatina. As the result of his own large experience, he lays down the following propositions:—1. In ordinary cases the poisonous principle of diphtheria enters the blood through the lungs, and after incubation, varying from a few hours to seven or eight days, gives rise to the symptom of the disease. 2. Facts do not justify the belief that the system can be protected by antiseptic or preservative medicines, given internally. 3. There is no known antidote for diphtheria, in the sense in which quinia is an antidote for malarial disease. 4. Diphtheria, like erysipelas has no fixed duration. It may cease in two or three days, or continue for as many weeks, the specific poison acting more intensely at the commencement than at a latter period; so that diphtheritic inflammation—as laryngitis, *e. g.*—is more severe and dangerous at an early period than when the disease has continued a few days. 5. The indication of treatment is to sustain the patient by most nutritious diet, tonics, and stimulants, employing other measures as adjuvants as the indications arise, the same rules of treatment being for the most part appropriate as are applicable in scarlatina. Local treatment should be unirritating and designed to prevent putrefactive changes and septic poisoning. Irritants which produce pain lasting more than a few minutes, or which increase the area or degree of redness, are hurtful, and increase the extent and thickness of the pseudo-membranes.

The most nutritious and easily digested food should be given, the preservation of the patient's inclination for food being of vital importance. Beef-tea or the expressed juice of meat, milk, with farinaceous substances, etc., should be given every two or three hours, or to the full extent without disturbing digestion. Failure of appetite and refusal of food are justly regarded as most unfavourable signs. In malignant diphtheria or scarlatina patients are allowed sometimes to slumber too long without nutriment. It is the slumber of toxæmia, and should be interrupted by feeding at stated times. *Stimuli*, as observed by Sannè, are indicated in proportion to the gravity of the case; and while mild cases do well without alcohol, this is required in all cases of a severe type, and should be given in large and frequent doses, wherever pallor or loss of appetite, or of strength and flesh, indicates danger. Of *tonics*, none answer the purpose better than cinchonidia and quinia. Concerning the doses of the latter, the greatest difference of opinion prevails, according as its antipyretic or its tonic effects are sought to be obtained. But high febrile action calling for antipyretic doses of three, five or more grains, are seldom observed after the first forty-eight hours, while at a subsequent period the tonic dose or

two grains every two or four hours will be found sufficient. Great difference of practice also prevails with respect to iron, some using it exclusively in large doses, while others employ moderate doses as an adjuvant to vegetable tonics. The formula which Dr. Smith prefers, say for a child five years old, is the following:—*R.* Quinia sulph.  $\bar{3}$  ss., elixir adjuvantis or elixir taraxici co.  $\bar{3}$  ij. Give one teaspoonful every two or four hours, and one teaspoonful of the following hourly between—*R.* Tinct. ferri chlor.  $\bar{3}$  ij., pot. chlor.  $\bar{3}$  ij., syrup  $\bar{3}$  iv. The tonic effect of the iron is not impaired by the chlorate of potass, which is added on account of its action on the inflamed surface. The citrate of iron and ammonia alone, or combined with carbonate of ammonia, may be given in two-grain doses, in syrup, instead of the above, when the inflammation of the fauces has considerably abated or is moderate. As the disease begins to abate the intervals between the doses may be lengthened, but the tonic should not be entirely discontinued until the patient is far advanced in recovery, on account of the dangerous sequelæ which originate in an impoverished condition of the blood.

The object in *local treatment* should be to reduce the inflammation of the mucous surfaces, and destroy the diphtheritic poison and contagious properties in the pseudo-membrane, and to destroy the septic poison, and prevent its absorption should any form. forcible removal of the pseudo-membrane, irritating applications, the use of a sponge or other rough instrument for making the applications, should be avoided as likely to do harm. These should be made with a large camel's hair pencil, or (better for most mixtures employed) with the atomiser. The hand atomiser is very useful, but the constant spray of the steam atomiser is very effectual, and is preferable in some cases. Dr Smith employs the following mixture:—1. Salicylic acid  $\bar{3}$  ss., glycerine  $\bar{3}$  ij., lime-water  $\bar{3}$  viij. 2. Carbolic acid gtt. xxxij., glycerine  $\bar{3}$  ij., lime-water  $\bar{3}$  vj. 3. Carbolic acid gtt. xxxij., chlorate of potash  $\bar{3}$  iij., glycerine  $\bar{3}$  iij., water  $\bar{3}$  v. Half a dozen or a dozen compressions of the bulb of the hand atomiser cover the surface of the throat more effectually with the liquid than can be done by several applications of the brush, and it is usually not dreaded by the patient. Diminution in size of the pseudo-membrane under the use of the spray is a favorable sign; but if it do not diminish, its presence can do little harm if properly disinfected. In many cases the spray suffices for local treatment, but this mixture (carbolic acid gtt. viij., liq. ferri subsulph.  $\bar{3}$  ij.- $\bar{3}$  iij., glycerine  $\bar{3}$  j.), applied by a large camel's hair pencil, is also very effectual, converting the pseudo-membrane into an inert mass, and putting a stop to all movements of the bacteria which swarm in it. It may be used two or three times a day between the spraying, or oftener without this.