

irritating action on the fauces can be noticed by any one who swallows a solution of two or three grains to the drachm. The Curator of the Foundling Asylum has noticed in the cadaver the ill effects of the more irritating ammonium preparations. In one instance in which the aromatic spirits of ammonia had been employed, it was supposed with sufficient dilution, the extent and severity of the gastritis were such that it seemed as if this agent might have hastened the fatal result. The preferable way of employing this valuable agent, to prevent its irritating action upon the stomach, is to prescribe it dissolved in water, and order each dose to be administered in a tablespoonful of milk. The muriate does not possess the irritating property of the carbonate, and it can be safely administered in double or treble the dose of the latter, and at short intervals. It is therefore, I think, to be preferred to the carbonate in most cases of severe bronchitis, except at an advanced stage, when an active stimulant of the heart is required.

In this connection, I will state my conviction that the ammonium salts, whether the carbonate or muriate, are not given in sufficiently frequent doses in the practice of most physicians, in severe forms of the disease which we are now considering. If there be marked dyspnoea, and urgent need that the mucus be expectorated from the tubes which it is obstructing, I think that the effect is better if the dose be administered every half hour instead of every second or third hour. Half-hourly doses are not inconveniently given if the vehicle be milk.

The muriate of ammonium may, like the carbonate, be administered in milk, but the following is with me a favorite formula :

R.—Ammonii muriat. ʒj.
Syr. bal. tolut. ʒij.—M.

Fifteen drops, which contain one grain of the muriate, should be given to an infant of three months, and thirty drops, or two grains, to an infant of six months. Physicians, in my opinion often defer too long the use of the ammonium salts, using for the first days depressing remedies instead. The infant suffering from dyspnoea, and requiring a strong and frequent cough to expel the mucus, may, according to my observations, take the muriate from the first day of the sickness with benefit; and every half hour or hour when it is awake. No harm can result from the use of this agent in frequent doses, and for several days, such as might result from the carbonate.

The ammonium salts tend to increase the frequency of the cough, perhaps by the slight irritation which they produce upon the fauces in the swallowing. The muriate may be employed so long as an expectorant is required, and usually with as much benefit as can be derived from any drug.

As regards the use of those other common expectorants which have long been employed, particularly senega and squills, those have been better observers than myself who have witnessed any marked benefit from them.

It is so necessary, as a means of relieving the dyspnoea, to assist the infant to expel the mucus with which the tubes are clogged, when the respiration is much embarrassed, that an emetic is sometimes proper. One should be selected which causes little exhaustion. The syrup of ipecacuanha may be employed, given with an alcoholic stimulant, as brandy or whiskey. Infants a few months old I have sometimes temporarily relieved by moving with the finger or a swab the mucus that collected upon the fauces. This simple operation produces a forcible cough, and sometimes vomiting by which a large amount of mucus is expelled.

The necessity of sustaining the strength of the patient, and, at the same time, of reducing the fever, has led to the employment of quinine by many, perhaps most, physicians in the treatment of severe infantile bronchitis. I cannot say that I have noticed any marked reduction of temperature from its use in bronchitis or broncho-pneumonia, but it has seemed to me that it has been useful as a heart tonic. Much harm may, however, be done by employing quinine in the treatment of infants, by the use of doses too large. In the adult, according to the sphygmographic observations of Dr. M. Putnam Jacobi, while quinia in a dose of five grains increases the strength of the heart's contraction, a dose of twenty grains enfeebles the contractile power of the heart in a marked degree. According to Stillé and Maisch, "Poisonous doses occasion dyspnoea and noisy respiration, which is also jerking, interrupted, retarded, and finally arrested" (*National Dispensatory*). A dose too large, therefore, would be likely to produce just such symptoms as occur in severe broncho-pneumonia. To an infant aged one year, with this disease, I do not give larger dose than one-half grain to one grain of the sulphate of quinia, every fourth hour, as in the following formula :

R.—Quiniæ sulphat. gr. xij.
Ext. glycyrrhiz ʒ ss.
Syr. pruni Virginianæ ʒ ij.—Misce.

Quinine, however, administered to an infant is very likely to cause vomiting from its bitterness, a result which I do not regret in the treatment of capillary bronchitis, because it causes the expectoration of considerable mucus. The second or repeated dose is usually not vomited. It is difficult to appreciate the beneficial effects of quinine in this disease, but that it does increase the contractile power of the heart seems probable.

If the temperature rise above 103° , if the infant have a full and strong pulse and flushed face, and if the lungs are not involved, or but slightly inflamed, antipyrin may, according to my experience, be safely administered, in proper dose, and with beneficial effect as regards the febrile movement. It should not be administered at stated intervals, but according to the temperature, so that, perhaps, only one or two doses daily may be sufficient. When the lungs are implicated, and the patient has severe broncho-pneumonia, I have seen such pallor from a single dose of antipyrin, in one instance, that I did not dare to