

ordered. In both these cases, however, there was some palliation of the paroxysms.

In regard to the administration of so disagreeable a remedy, I found that, though frequently there was some difficulty in getting the children to take it, yet it was exceptional for them to resist after the first two or three doses, and in only a very few did it cause vomiting. The direction to give the children a piece of an orange or a little sugar five or six minutes after taking the quinine, doubtless, had considerable to do with their seeming willingness to take the "bitter medicine."

As to how the quinine so very remarkably influences this most troublesome and severe disease several theories might be advanced. If the fungus theory of Dr. Letzerich be the correct explanation of pertussis, then we can readily account for its destructive influence on fungoid development, and consequently its power consists in removing the cause of local irritation, which gives rise to the reflex phenomena evidenced in the whooping.

The above theory and explanation carries with it considerable weight, and, appears to me, should be accepted until disproved, or a more convincing pathological explanation of pertussis is given.

For my own part, I accept it, and in consequence consider pertussis an affection of the mucous membrane of the pharynx and larynx, and the "whooping" as simply reflex. And the fact that almost all remedies given for other than their local effects, have either signally failed or but partially succeeded, strengthens this hypothesis.

Nevertheless, I do not attribute the rapid cure effected by quinine to the simple destruction of the fungus, but also to its nauseating bitter taste. In every case of pertussis, it will be conceded by all, there is an abnormal secretion of a thick tenacious mucus from the mucous membrane of the pharynx, (whether this secretion is due to simple catarrhal or reflex hyperæmia, or to fungoid development, it matters not,) which may or may not excite a paroxysm of whooping, but which certainly aggravates and prolongs the latter, as may be proved by the fact that the paroxysms invariably cease the moment this mucus is removed either by the coughing, vomiting, or the finger. Now, the effect of a small amount of a solution of quinine, when taken into the mouth and swallowed, is instantly, from its bitter and nauseating taste, to excite a free secretion of thin mucus from the buccal mucous membrane and the salivary glands, and this softens and renders easy of dislodgment the tenacious mucus referred to. The frequent repetition of the quinine, therefore, keeps up this free secretion, and thus prevents the mucus from becoming tenacious and difficult of dislodgment. At each act of coughing, therefore, the accumulated mucus is readily loosened and expectorated, and unobstructed inspiration obtained. The rapid loosening of the cough, the briefness of the attacks in comparison with those previous to the administration of the quinine, and the easy expectoration, certainly tend to favor the correctness of the above theory.

The failure of quinine against pertussis, in the hands of others who have tried it, is undoubtedly to

be attributed to the manner of its administration—either in large doses at long intervals, or in the form of pills; in either case, therefore, the local effects upon which I place the greatest value are not obtained. While writing this paper, a friend, whose practice is largely amongst children, informed me that he met with no success with quinine in pertussis; but on his informing me that he had always given it in large doses, morning and evening, I attributed his failure to that fact.

The object with which I have written this paper is to call the attention of the profession to this treatment of pertussis, and invite them to give it a careful trial, feeling convinced that if the following rules are carefully observed, few, if any, will be disappointed in their results.

1. Give the quinine (sulphate or hydrochlorate) dissolved by acid in pure water only. For children under 3 years, from gr. v. to gr. viii., and for older children and adults, from gr. x. to gr. xli. to the ounce.
2. Give not less than a teaspoonful *every single*, or, at the longest, every two hours during the day, and whenever cough comes on in the night.
3. Give nothing afterward for some minutes to destroy the taste or to wash out the mouth.
4. Continue giving it notwithstanding the first doses may be vomited.
5. Be sure that the quinine is pure and thoroughly dissolved.

*Appendix:*—Since the above paper went to press, two cases of whooping have come under my care. One, a boy of three years, who was brought to my clinic in the University on Feb. 8; had whooped severely four and five times daily, and as often during the night. He had an attack in the presence of the students in the lecture-room. He was ordered quinine gr. v. to the ounce of water, a teaspoonful every hour daily. No other treatment. He was again brought to the clinic the following Saturday, Feb. 15, when his father stated that the attacks at once grew less severe and frequent after taking the quinine, and that on Wednesday and Thursday (fifth and sixth days) he whooped but once in each twenty-four hours, very slightly. The medicine gave out on Thursday evening, however, and since then the whooping has increased in severity and frequency. The other case was a little girl two years old, who was brought to the Free Dispensary for Sick Children on Feb. 11. She had whooped for three days, five or six times during the day and night. Was ordered quinine as in the preceding case. Was again seen Feb. 15, at my clinic, and shown to class. In this case the mother confessed to having been negligent in giving the medicine, not having given it oftener than four or five times during the day; and yet she said the child had greatly improved, and had whooped but once or twice during the night time only since taking the quinine. Both of these cases were also seen previous to and after treatment by Dr. P. B. Porter and Dr. Beverly Robinson, and being the last cases under my care, are a valuable addition to the preceding report of the six out of my first cases.