

the intestinal juices is something to be chemically counteracted; observers are not agreed that the cyanosis is due to the diffusion of blood-serum, and it is open to question whether it is possible to destroy the bacilli in the alimentary canal.

The diarrhoea is the principal and often the only symptom met with early in the disease, and, even regarding this, professional opinion is divided into two great camps. The one looks upon the diarrhoea as an effort of nature to rid herself of the bacilli and their poisonous products, and believe that astringent measures only favor their retention and absorption. Those who favor this view advocate the use of remedies which tend to limit or destroy the cholera germs, together with measures calculated to sweep them as rapidly as possible out of the bowels.

Those who advocate the astringent theory, regard the diarrhoea as a condition which, like all catarrhal states, favors the rapid multiplication of the bacilli. They believe that by checking profuse secretion and allaying irritation they are removing conditions which favor the growth of cholera germs. There is no doubt that many cases have recovered under this line of treatment, whether as a result or in defiance of the treatment, who shall say? There is probably a measure of truth in both theories, as I shall endeavor to show.

There can be little doubt that the undigested food and fecal matter in the bowels forms the most favorable soil for the growth of the bacilli, and the development of their toxins, and there are probably few medical men at the present day who would not regard it as their first duty to remove such material as soon as possible in an ordinary case of diarrhoea. This would also seem to be the proper course to pursue in cholera, not with the object of removing the bacilli, but the materials which favor their growth. For this purpose, castor-oil, Gregory's powder and rhubarb have met with most favor. Of course if this object had been effected by the efforts of nature, nothing would be gained by adding to the irritation. Some who have tried the purely purgative treatment have given it up and gone back to the astringent method, but they probably did not use that judgment which is necessary to the success of any treatment. Sir George Johnston, who may be said to be an apostle of the purgative

treatment, admits that there is a time when purgatives should give way to a soothing and astringent course, calculated to allay the irritation and heal the mischief caused by the disease. From several places where this plan has been tried come the most encouraging reports. It was given a very thorough comparative trial in the Liverpool parish infirmary, in 1866. Ninety-one cases were treated with hypodermic injections of morphia, astringents, stimulants, etc., with a mortality of 71.42 per cent. Eighty-seven cases treated with castor-oil and a liberal allowance of food and alcohol gave a percentage 41.37 deaths. One hundred and ninety-seven cases were treated with castor-oil alone, without food or alcohol, and the death-rate was only 30.45 per cent.

Epidemics differ so much, and there have been so many cases which have recovered with little or no treatment, that we must be careful in estimating the value of any method, but a comparative test such as that referred to, is surely of more value than any number of individual experiences.

Cantain's method to a certain extent belongs to the category of eliminatives, for while he adds tannic acid and laudanum to the enema, they do not prevent it washing out the fecal matter and toxins from the bowels as far as it reaches. There is probably very little absorption, and so the tannin and opium will only have a local effect, if any. In early stages this treatment seems to have given good results, but when used in the later stages when the blood has become saturated with toxins and nature requires all her powers of depuration, although it checks the diarrhoea, the patients usually die in a typhoid condition.

In this, as in many other diseases, we are in great need of a more complete knowledge of the natural history of the disease, uninfluenced by drugs. We know at present that many cases get well with little or no treatment, and the most active measures give only a small percentage of recoveries. Fuller knowledge of its natural history would, doubtless, cause us to discard many of our powerful remedies. Opium is one of our most powerful means of relieving pain and shock, which are such important factors in the struggle for life in either a medical or surgical case. It also lessens peristalsis, and diminishes all the secretions, except that of the skin. These properties may prove of great value if wisely used, but powerful weapons

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