tive social tradition has invested with peculiar sanctity and force, you have an instrument the suggestive value of which for a certain type of minds (their name is legion), whose native mystical bent has not been corrected by systematic education in the methods and results of modern science, is well-nigh incalculable. Of course, what is one man's meat is another's poison, and whether meat or poison will depend entirely on the particular individual's character and intellectual bias gained through circumstance, deliberate self-discipline and the educational activities of the group of which he has been a member. But if a given individual is so constituted that no violence is done to his total experience by the metaphysics of Christian Science, then this system is perhaps the most effective and conceivably the only means to secure, in this individual, the state of mind requisite for health and happiness. And that Christian Science offers, in a large number of cases, just the aid which the imagination requires, the present great popularity of Christian Science and kindred phenomena abundantly attests.

Considered from the point of view of orthodox science or of consistent thought the value of Christian Science is *nil*; this much, at least, must be as plain as paint. But if it makes as little sense to ask whether a theory is true as to ask whether it is blue (a piece of pragmatic facetiousness) and if the truth of a view is measured by the measure of its success in life and practice, then Christian Science is, on its metaphysical side, a highly respectable candidate for philosophic honors. It is one of those views, many more of which could be named, whose logical value is either negligible or non-existent, but which, nevertheless, seem to serve an important practical purpose, and which, therefore, appear to be justified in cases where the practical demand is more urgent than the theoretical one of making life a rational and orderly whole. Pragmatically considered, Christian Science frequently appears to be right; scientifically it is wrong from beginning to end. And this may be used as an argument for Christian Science or against pragmatism as suits the taste.

My own view (if the reader should care for it) is, to use the striking words of Bradley, that no man ever went about to break logic but in the end logic broke him; and how the inevitable logic of Nature which we call natural law, and which we sometimes affect to despise, sometimes revenges itself on us and breaks us has been already suggested in a painful reference from the further elaboration of which I must be excused. The reader will doubtless be able to supply concrete illustrations from his own experience if he wishes to do so. It is powerfully illustrated by that mute but mighty army of men and women who, though not believing in death and disease, have not been able to resist the universal conquerer, and who have often fallen a ready prey to his power because heedless of the manner of his operations, and failing to fight him with his own weapons: those laws of Nature, namely, whose universal and consistent sway proclaims them divine.

Gonorrheal Nephritis.—Stoyantchhoff, in the *American Journal of Urology*, May, states that the treatment of gonorrheal nephritis differs little from that of any case of acute nephritis. The diet should consist exclusively of milk; diuretic and alkaline drinks may be added. As a urinary antiseptic he advises salol—2 grams daily. If the pain is great and the albuminuria is moderate, opiates may be given without fear of aggravating the renal lesion.

WHOOPING COUGH FROM THE POINT OF VIEW OF PUBLIC HEALTH *

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Whooping cough has so long been treated by the laity and also by some physicians as a joke that I would hesitate to bring the subject to your attention, if I did not feel that it is high time for the medical profession to put aside this erroneous idea and give serious thought to checking this large source of infant mortality. That there is some excuse for the popular impression that whooping cough is not a serious disease is shown by the following quotation from one of the older editions of Strumpell's "Text-Book of Medicine":

The prognosis is favorable with the majority of children, if they are previously strong and healthy. Very young children are in more danger than older ones. There is danger if secondary pneumonia develops and if the general nutrition and strength of the child suffer.

This is the teaching I received in college, and it is certainly enough to give the student the impression that whooping cough is a disease not to be greatly feared. The feeling that whooping cough is a trifling affair seems to be due in the main to two reasons. The first is that in children over five it is seldom fatal, 96 per cent. of those who died from this disease in 1906 having been under that age. The second is that the patients usually die from some terminal complication, most often from bronchopneumonia, which, according to Holt, is responsible for two-thirds of the deaths from whooping cough and is often put down as the cause of the death without reference to the previous disease. But this, of course, is not the proper classification of the death, for the bronchopneumonia would not have occurred without the whooping cough and is entirely secondary to it. This is likewise true of the diarrheal diseases, the convulsions, and the marasmus which frequently come at the end to carry off the whooping-cough patients. On account of this erroneous classification, our mortality from whooping cough, which, as I shall show, is now far too large, seems smaller than it is, though how much smaller it is, of course, impossible to say.

To prove to you that whooping cough is really a very serious matter, I think it will be advisable, before going farther, to give a few statistics in regard to the mortality from this disease, though this varies greatly in different cities and in different years, for, to quote the census reports for 1907, "whooping cough, like scarlet fever and measles, seldom shows an unbroken high prevalence from year to year in a given city, but fluctuates with high rates for a year or two and then abruptly declines." It nevertheless nearly always causes more deaths in the registration area than measles or scarlet fever, and in 1907 caused sixty-five times as many deaths as smallpox. In 1906 there were 6,324 deaths attributed to whooping cough as against 4,856 deaths in 1907, and in both years typhoid and diphtheria, alone of the epidemic diseases, gave a greater mortality. "Yet the United States occupies a somewhat favorable position among the nations with respect to its death rate from this disease," the rate in some of the European countries being many times that in this country. It is interesting to note that in ten years in New York City whooping cough killed 3,200, while in the same period only 3,430 deaths were attributed to typhoid. To come

* Read before the Richmond (Va.) Academy of Medicine and Surgery, May 25, 1909.

nearer home, we find that the highest death rate in 1907 was in Lynchburg, while Dr. E. C. Levy, in his "Annual Report of the Health Department of Richmond," says:

It is not generally recognized, either by the people or by the medical profession, that measles and whooping-cough are the two children's diseases that are especially fatal in this part of the country, far exceeding, as shown by our own statistics, scarlet fever, which is ordinarily regarded as much more to be dreaded, and also exceeding diphtheria since the general use of antitoxin and proper quarantine regulations, based on bacteriologic methods.

Let us now take a general view of the situation and see what seems to be the cause of this large death rate and what is being done to reduce it. I think the first reason is the general impression that whooping cough is a comparatively mild disease which all children must have, and that the sooner it is over with the better it is for all concerned. On account of this belief, there is often no attempt made to protect children from infection, and people whose children have whooping cough see no reason why they should be inconvenienced in order to save the children of their neighbors. For this state of affairs I believe the medical profession is primarily to blame, for we have not warned the public sufficiently of the danger to young children and very often have told the parents to keep children with whooping cough out of doors or to send them to the park; while we have failed to warn them not to let these patients come in contact with other children. As a result we not only find children with whooping cough in the streets and parks, but they are taken without compunction on the street cars, trains and steamboats, and are even sent to visit other children in their homes. When we consider that over 95 per cent. of the deaths from whooping cough occur before the fifth year, and that consequently we could save almost all the children who die of it, if we could merely keep them away from direct infection till they were beyond that age, we can appreciate how criminal our present carelessness is. There are, however, various things that make the segregation of whooping-cough cases very difficult. The older children do not feel very sick and want to run and play as usual, though they can spread the infection at any time during the six or twelve weeks that the disease lasts. Besides it is very necessary for these patients to get outdoor air, and in getting this great care must be exercised to keep them away from other children. Furthermore, the infectiousness begins with the very onset of the disease, so that other children are frequently infected long before the diagnosis of whooping cough is made in the first patient. Consequently the problem of lessening whooping-cough mortality presents many difficulties which so far have not, to my knowledge, been aggressively attacked by any health department, for, as Dr. Chapin, of Providence, says, "no one has suggested any efficient method of combating whooping cough." The patients themselves are excluded from the schools when the disease is fully developed, but their brothers and sisters are allowed to continue their studies through the possibly most infectious catarrhal stage, during which period they are almost sure to infect schoolmates with infant brothers and sisters at home. Further than this exclusion from the schools I know of no public measures for hindering the spread of whooping cough.

In regard to prevention, Forchheimer very pointedly remarks: "In few diseases can so much be done by prophylaxis; in few is so little done"; for from a practical standpoint whooping cough seems to be only directly infectious, though a few cases are on record

which seem to have been carried by a third person. Therefore, though it may sound presumptuous for me to make suggestions in regard to controlling a disease, for which "no one has yet suggested an efficient method of combating," I nevertheless think it is time for some one to present plans which can at least call forth criticism, if they are not capable of standing the rigid test of actual use. I would base my plan of attack on the propositions that over 95 per cent. of the deaths from whooping cough occur before the fifth year, that after this age the disease is comparatively mild, and that in consequence we can reduce the mortality to a relatively unimportant figure by merely protecting the children under five years from direct exposure. The first step in this direction is to teach the people that for young children, and more especially for infants, whooping cough is one of the most fatal diseases, but that their children will be comparatively safe if they can only ward it off for a few years by keeping them away from children with the disease. It is, therefore, a campaign of education that we must carry on, though not nearly so difficult a one as that which is now being waged against consumption. And, by the way, we should be able to use some of the well-organized forces engaged against tuberculosis, for whooping cough is an undoubted predisposing cause of tuberculosis in children. The health departments should then begin this work of education, and they should begin by seeking the advice and hearty cooperation of the physicians of their respective communities, for without this the work will be vastly more difficult. Having done this through the medical societies or by letter, let the people be warned of the danger to young children from whooping cough, not only at the beginning of the campaign, but every time the disease starts up in a city or in any fresh section of it. Having told the people that whooping cough is more fatal than scarlet fever and smallpox, let the health departments prove that they believe it themselves by treating whooping cough in much the same way that we treat other contagious diseases. Of course, it will be impracticable as well as unnecessary to quarantine a whooping-cough patient in one room, as we do scarlet fever, diphtheria and smallpox, but a modified quarantine should be instituted in all cases.

The first actual step to be taken with the individual cases is to see that they are reported as promptly as possible to the health department. The house should be placarded, as much to make the parents feel that the case is serious as to warn friends and neighbors of the presence of the disease. A medical inspector should then go to the house, give the people instructions as to the seriousness of the disease with young children, as to how to prevent its spread, the probable time the contagion will last. He should also have printed instructions to supplement what he has said. The instructions as to quarantine will, however, have to be modified to suit the cases and the circumstances of the family. Thus children that live in houses with yards and porches, ample enough to provide the very necessary fresh air, should not be allowed to leave the premises. Less fortunate children might be allowed in the streets and parks, if they wore conspicuous ribbons bearing the word "whooping cough," but this privilege should be withdrawn if they were found to be purposely mixing with other children. A still better place for these children is a special hospital outside of town, where they could get plenty of fresh air and good food, for this is the only sure way of saving the babies of the tenements from infection. All large cities should have these whooping-cough hospitals,

and it speaks very badly for America that we have no place to put these children, who frequently must be kept at home to infect the others in the family. Not only should a medical inspector have the right to send to this hospital all patients that he does not think can be cared for at home, but also any patient who breaks the quarantine rules established by him should be sent to the hospital, no matter what the financial circumstances of the family. Not only should the whooping-cough patient be withdrawn from school, as seems to be the universal custom, but the other children in the family should be excluded for two weeks after being separated from the patient, and this exclusion should be continued, if they have even the slightest coughs. Any pupil who has been exposed to contagion and who has a cough should be immediately sent home by the teacher, who should also notify the health department. In this way one of the greatest sources of infection, the patients who have not yet "whooped," will be nearly eliminated from the schools.¹

It is frequently easier and better for people with the necessary means to send their young children away from the house, which contains a case of whooping cough, but these children must be watched and kept away from other children as soon as any suspicious cough appears.

The placard and the quarantine should not be removed from the house, if we follow the rule laid down by Forchheimer, "unless six weeks from the onset have elapsed, until the true whoop shall have disappeared entirely and until expectoration shall have practically ceased." The room occupied by the patient should then be disinfected as much for educational purposes and for justifying the placarding and quarantine as for the removal of contagion left in the room.

Another most important prophylactic measure lies, I am afraid, in the main, beyond the reach of the health departments; I mean the early diagnosis and the consequent prevention of infection from cases in the catarrhal stage, for until we are certain of the bacterial cause of the disease and can diagnose it as we do diphtheria, we shall have to depend on the individual observations of the family physicians, but the health authorities can help them by warning them of the presence of whooping cough in the city as soon as the disease is reported. Thus warned we should not wait for the "whoop" before telling the parents that the disease may be whooping cough and that they consequently must be careful not to spread it. In such cases a dry cough with practically no chest signs, little or no rise of temperature and a lymphocytosis is enough to make a diagnosis; and this early diagnosis may be enough to stop a considerable epidemic. Nothing is more important than this early diagnosis and early warning from the doctor who is called in to look at the child; and the health authorities, I am sure, can count on this cooperation on the part of the physicians, for without this early diagnosis the disease can spread to a considerable number of children before actual public health precautions can be taken.

Of course, I do not claim any originality in the methods I am suggesting, for they are being used in various other diseases. What I do maintain is that they should even *now* be applied in a rational way to a disease, which is one of the largest sources of infant mortality and which at present we are absolutely neglecting. The

public is educated to demand protection from smallpox, but absolutely uneducated as to the possibility of preventing almost all the deaths from a disease which is now killing sixty-five times as many people as smallpox. It is up to us physicians, but more especially up to the health departments, to open the eyes of the people in regard to whooping cough and teach them to prevent what under the circumstances seems a very shocking mortality.
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SOME THOUGHTS CONCERNING SLEEP AND DIGESTION

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Let me have men about me that are fat,
Sleek-headed men, and such as sleep o' nights.—*Shakespeare*.

The devout psalmist sang, "He giveth His beloved sleep"; old Homer exclaimed, "Sleep is the gift of God"; the poet Young wrote of it in his "Night Thoughts" as "Tired Nature's sweet restorer," and also:

Man's rich restorative, his balmy bath
That supplies, lubricates and keeps in play
The various movements of this nice machine.

Depew calls it "the solvent of longevity, health and work"; while Henry Clews, the financier, said recently, "Sleep means everything to a man—good health, good looks, will-power, and self-confidence." Wise men from Socrates to Russell Sage have advocated spending one-third of the twenty-four hours in bed. All this shows a deep appreciation of this restful attribute among all ages and conditions of human thought.

Sleep, as a "balm to hurt minds," has been thoroughly considered by the neurologists, and, as a desideratum in all acute and continued diseases, will be found mentioned frequently in the various works devoted to therapeutics.

As to the actual influence of sleep on digestion, however, there is some conflict of opinion, and I shall endeavor briefly to cover the subject in a manner helpful to those interested in practical dietetics.

It is a well-known physiologic fact that the elimination of carbon dioxid and absorption of oxygen are diminished during sleep, mainly because the muscles are less active.

Tigerstedt places the ratio of metabolism between the sleeping and waking state as 100 to 145, but asserts it to be dependent on cessation of voluntary movements; "for it may reach just as low a level in the waking condition, if the muscles be completely relaxed and every voluntary motion suppressed."

While other secretions are diminished during sleep, this does not apply to those of the digestive apparatus. "It is sometimes stated that the digestive secretions are diminished during sleep, but the statement does not rest on satisfactory observations, and may be doubted" (Howell). "Sleep does not exercise the least influence on the secretory work of the gastric glands" (Winfield Hall).

No one would deny that a baby thrives best, and puts on weight most rapidly, when he can sleep soundly after each full meal from the maternal fount. It is a frequent custom among those who perform arduous physical labor to take a sound nap during the noon hour immediately after eating; and some of the finest specimens of muscular development that I have observed have been those who went to bed promptly after eating a hearty supper, and just as promptly went to sleep.

1. Attention has recently been called to the number of cases of measles and whooping cough contracted in the kindergartens. So it is questionable from a public health standpoint whether these schools should be allowed to take pupils under five years of age.