of the disease, or of the typhoid bacillus. I have seen certain studies which would indicate as many as four to the thousand. However that may be, the point is that, out of every large group, some persons are typhoid carriers. Either of these carriers must be identified, isolated and specially cared for, or we shall have to consider and treat the excreta of that great group of the community as infected. The time is coming when we must declare that human excreta, whether from apparently healthy persons or not, are dangerous at all times.

DR. J. H. WHITE, New Orleans: Instead of trying to cleanse its water supplies from typhoid as well as other pollutions, the State of Montana forbids that any of her streams shall be polluted, and says to the cities: "You shall not put any sewage into your streams any longer; you must dispose of it in some other way." Eighteen communities discharged their sewage into the potential water supply of the State of Montana up to recently. Five have been compelled to remove, and in process of law the other thirteen will be compelled to move, so that the water supply will be free from pollution. While it is not possible for all the other states to do that, it is possible to prevent further pollution. In 1893, when on duty in Hamburg, Germany, I went over the question with Dr. Dunbar and another man in Hamburg, who was giving a quarter of a million dollars toward the investigation and provision of some method of cleaning the small streams of Germany, and making them fit for use. This example is a good one for us, since the Elbe River alone is polluted with sewage from 38,000,000 people.

DR. W. F. DUTTON, Pittsburg, Pa.: The effluent of chemicals can not be filtered from Ohio River water. In Pittsburg the water corrodes the pipes and furnishes a water that is not fit for cooking and drinking purposes. The unfortunate individuals who are forced to use this water are prepared, by the gastroenteric irritation, to become ready victims of typhoid. It is disgraceful that a municipality of such vast wealth should sacrifice yearly, through gross negligence, so many lives. The ways and means adopted by Dr. Munson and Dr. Gorgas in stamping out disease during the Spanish-American war, and recently in our new possessions, are commendable. The municipalities of the Ohio valley should take a few suggestions from these examples and get to work.

DR. O. C. BREITENBACH, Escanaba, Mich.: This question of winter cholera has become a very important one because of atypical manifestations of disease in many of the municipalities of Illinois and Michigan, as well as other communities, throughout the country.

FRESH-AIR TREATMENT IN THE HOME AS APPLIED TO PEDIATRICS.*

ALEXANDER McALISTER.

CAMPDEN, N. J.

If fresh-air treatment is demanded, at all hazards, in tuberculous adults, it is three-fold more imperative in children, in whom are the issues of adult life and also of probable death in youth or early adult life when the infantile infection is not detected and removed. Successful treatment of a child saves a member to the family and an adult to the community. Unsuccessful treatment, if not attended by death in early life, only contributes to the rank and file of adults a morbid being to face with increased risks and frightful odds the perils of unfolding adolescence, or, if a female, of the functions of motherhood.

But aside from this saving of life from the ravages of the white plague, the greater power of a redeemed and robust child-life in repelling or combating diseases incidental to subsequent years argues with equal force

for vigorous and persistent use of the fresh-air treatment of children. Such treatment should be practically general, since it is indicated in active, latent and suspected tuberculosis; in scrofulosis, in lymphangitis—in fact, in all children of delicate, puny or frail constitution. But children who are not included in the above list, children whose parents are tuberculous, especially the mother, should not be denied these invigorating influences, for otherwise, sooner or later, they are likely to show a marked morbidity or other early signs of the tuberculous infection.

In other terms, there is to-day a great need for a general return to the ancient practice of "hardening children"—one of the arts lost in our modern domestic life. Twenty years' general employment of this fine art, along high scientific lines, in all-civilized lands, would go a long way toward placing tuberculosis where it belongs, namely, in the group of diseases attendant on ignorance and heathenism, rather than enlightenment.

Modern medical research has forced on us several fruitful conclusions. The most important of these are:

1. The average duration of tuberculosis is longer than we know.

2. The majority of cases of tuberculosis begin in the earliest years of life.

3. When pulmonary tuberculosis appears in a youth, the point of attack has generally been from the inside—in all likelihood from bacilli that had lain dormant in the lymphatic system a long time.

In the old conception a case of tuberculosis began when the advent of an alien infection ushered in the first crisis in the development of the specific bacillus. We now know that this crisis simply marks the beginning of tissue-destruction, or, accurately speaking, consumption, and incidentally also of the absorption into the system of new and more harmful toxic products.

In the more modern and scientific conception, tuberculosis begins the moment the specific bacillus takes root, so to speak, in the soil of the system and thus begins its parasitic life. The earlier the system can be stimulated to throw off the infection the less the effort required. On the other hand, the more luxuriant the infecting bacillus, the greater the expellant force must be. These facts may be assumed as self-evident and as additional argument in favor of utilizing the fresh-air treatment in infants and children. Since the treatment can work only good and the tuberculous infection only evil for the child, the treatment should be enforced in all instances in which infection may be feared, but can not be positively disproved.

Here is an instance in medical practice in which reasons for suspicion should be diligently sought and a suspicion accorded weight equal to a scientific diagnosis. No race or period of life is wholly exempt from tuberculosis. The specific bacillus has been found in the placenta, thus forcing the conclusion that intra-uterine infection of an infant is quite possible, though perhaps rare, and that by just so far is the old term "inherited" applicable to tuberculosis. According to Holt, tuberculosis has proved fatal at the tender age of twenty days.

The success of the fresh-air treatment in children hinges on the physician's ability to enlist hearty family cooperation. The idea of inheritance still dominates the average mind. It is a pertinent fact that less than average intelligence is required to appreciate the benefits of air and sunshine to a debilitated constitution, while more than average intelligence fails to credit claims for

* Read in the Section on Diseases of Children of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908

like effects on disease. Hence the great importance of forcefully placing all the blame where it belongs—on an subnormal constitution—and of impressing the need for a practically out-of-door life for children.

In this connection certain postmortem findings are of special interest. They show that the tuberculous infection is more frequent during the first year than during the second, and during the second year than during the third. Although these records are still too few for sweeping generalizations, they justify certain conclusions that are evident from other observations, namely, that infants are frightfully exposed to tuberculosis and, what is sadder still, that many succumb, directly or indirectly, to the infection. Perhaps it is to these two facts that we should look for an explanation of the fact that the infant mortality rate continues high while for other ages the rate is decreasing.

Other recent conclusions bearing on the subject and urging on us an outdoor life for children are, first, that in the subnormal infantile system vitality is lacking to throw the infecting bacilli from the glands into the lymph and blood currents to be annihilated; and, second, that during adolescence when the powers are rallying and these bacilli are dislodged they frequently find the lung tissue under tone and here become the germinating seeds of consumption.

Tuberculosis is, above all other diseases, bred in the family, and in a large measure, if not absolutely, controllable by domestic hygiene and curable by the fresh-air treatment. That is a sweeping statement, but it is well supported by facts. For argument's sake we may admit that in our ardor we are only riding to the extreme another therapeutic hobby. No more worthy hobby was ever ridden. In the entire list of therapeutic fads and fallacies of all ages there does not appear one hobby that could be ridden with greater profit. What is curative of tuberculosis is productive of constitutional vigor and prophylactic of practically all diseases.

Every infant enters on life with a certain capital of vitality. Alas, that in many instances this capital is so small and in many more so quickly squandered! The result is early physical bankruptcy, tending to early death or the laying of the deep foundation of diseases—notably tuberculosis.

Children generally respond well to this treatment. In the case of adults it is not always possible to carry out the treatment in the home, owing to the difficulty experienced in laying aside all business cares. Children, on the other hand, are passive and indifferent to surroundings generally. They require little attention apart from intelligent oversight.

The treatment must be conducted under the personal supervision of the family physician. Eternal vigilance and circumspection are demanded here just as in case of typhoid fever. Erroneous conceptions, false and antiquated notions, and gratuitous suggestions from outsiders, are best anticipated and forestalled.

Details of instruction as to treatment can not be laid down here, since they depend on the age and condition of the patient and the general home environments. The diet and strength of digestion demand first attention. An angle of the house, a porch, an awning, an outbuilding or the shady side of the house may be used as a nursery during the daytime. Yet the fact must not be overlooked that any strictly outdoor site may be fully

equalled in merit by a nursery or sun-parlor where a limitless supply of dust-free air may be commanded.

It is well to map out for each child a sliding scale of hours to be spent in the open air. This progress should grow into a practically outdoor life. The bedroom must open into the outer air. The folly, if not culpable ignorance, that one meets on every hand relative to the dangers of draughts must be combated with patience and sound arguments.

The cough and fever generally yield first in successful treatment and hence are a valuable index. When these are absent, improved digestion and normal increase in body weight indicate good results of the treatment. Care must be taken to avoid exposure to the direct rays of the summer sun as well as to the sweep of high winter winds.

Finally, much depends on an intelligent appreciation of the fact that fresh-air treatment does not imply simply cold air treatment. "Cold" and "fresh" are not synonymous terms. The air in a cellar may be cold, but it is seldom fresh. Water from an ice-cooler may be cold but is never fresh. On the other hand, water drawn from a deep well may have a uniform temperature of 55 F., but is always fresh. When it stands in a vessel the freshness is lost, though the temperature may fall many degrees. Freshness in water is the sparkle the water brings up from the fountains of the earth. Freshness in air is the sparkle the air draws from the azure depths above us.

Aeronauts tell us that the great envelope of atmospheric air about us is a vast inverted ocean whose placid depths are in the heavens and whose surface is plowed and churned by the revolving earth, to the depth of hundreds of feet, into a mighty wave and billow-tossed surf. Life in this eternally agitated surf is outdoor life. In the fresh-air treatment the patient bathes continually in the surf of the aerial sea.

Then, to use one more analogy, the value of surf-bathing does not lie in the presence of salt or the percentage of salt in the water but in the surging ocean beyond and the impact of water on the body. Likewise the value of the fresh-air treatment is in the impact of the inspired aerial surf—the respiration of free, surging air.

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ABSTRACT OF DISCUSSION.

DR. D. E. ENGLISH, Millburn, N. J.: I can endorse everything in Dr. McAllister's paper. In regard to fresh air and cold air. I do not think that it is necessary to have the air very cold. I have observed that in steam-heated rooms, with the windows open on two sides of the room, the thermometer on the wall opposite the windows would sometimes register 20 degrees higher than the temperature out of doors.

DR. C. F. WAHBER, Ft. Madison, Ia.: If we keep these children stirring in the daytime they will probably get all the fresh air they need. The problem is to get plenty of fresh air at night. Among the poor, fresh air is always cold air. By the use of a window tent something may be done in getting the proper quality of air. We must educate out of existence this old superstition that night air is dangerous air. Tuberculosis is a disease of civilization. I live in a city of 11,000 population, a city that is built on the river, so that we are practically in the country air. The consequence is that I do not see one case a year of tuberculosis in children. But it is a problem that must be dealt with in the cities, especially in the crowded districts among the poor. In the winter time the wealthy people can afford to have their rooms warm and the windows open, but in the poorer districts one can not get clean warm air. The only way we can bring about such a

desirable result is to employ the aid of our legislators. When they are willing to spend as much for our children as for rust on potatoes and things of that sort, we may hope for an improved condition of affairs, and not until then.

DR. ARTHUR W. FAIRBANKS, Boston: In considering the problem of tuberculosis in children in the cities we must divide the cases into three classes: First, in well marked, absolutely hopeless cases the patients should be placed in a hospital to protect the community and the family. The second class includes slightly but definitely developed cases of tuberculosis in the initial stage. In these cases the patients can be cured only in a sanitarium. We must have absolute twenty-four-hour control of these children, if we hope to accomplish anything. The family will not carry out our instructions if the patient is in the home, and we can not appeal to the children to do what we require, so to get any result we must have them in a sanitarium. Then there is the third class of cases, the so-called pretuberculous cases, those offering the best soil for the development of tuberculosis. They are so numerous that the state should deal with them. They have to sleep at home, but they should be put into schools out of doors, in the woods. Children in these outdoor schools do well in Germany and in their studies they get along as well as they do in the town schools. We might shorten the vacations and keep them in the schools during the summer, for they are better off in the forest than they would be at home. When they are sleeping at home we should have nurses to visit them and see that they are getting the best air obtainable. But at best the air in the cities is not dust-free or smoke-free.

DR. JOHN M. BEFFEL, Milwaukee: In considering this problem of the treatment of tuberculosis in children, it should be announced that the time to cure tuberculosis is before the patient gets it. It takes a child of a certain potentiality to live in this world. The fact that those who die of tuberculosis die at the average age of 35 years shows that tuberculosis is not a disease of childhood, but that if they contract it in childhood they retain the organisms in the body until they are mature. So, the first thing to do in the treatment of the condition is to prevent the development of tuberculosis. The child of a tuberculous mother should not be put to the mother's breast. As our homes are constructed to-day, it is practically impossible to get fresh air in the home without subjecting the child to the possibility of developing some other disease condition. In a tuberculosis sanitarium we have a sleeping-room and a dressing-room, but in our modern houses the bedroom is the sleeping-room and dressing-room. If the child is to sleep in a cold room, then the mother must get up in that cold room and dress in it. She naturally hesitates to dress her child in such a cold room. If our houses were so constructed that the child and mother could dress and undress in a warm room and sleep in a cold room, it would subserve the interest of these children. Twenty-four hours of fresh air every day is the only cure. It was Vaughn who said that one should breathe fresh air twenty-four hours a day and that the only air one can breathe at night is night air. The night air is not the worst air in the world. In our great cities the night air is the best air in the twenty-four hours. It has been cleared by the sun and there is no longer so much dust and dirt in it, so that it is in better condition to breathe than at any other time. In the treatment of tuberculosis in the home many children succumb for want of nourishing food. There are two essentials to the treatment of tuberculosis; one is an abundance of fresh air, and the other is plenty of nourishing food. The Indian succumbs to the disease as soon as he is infected with it because he is a poorly nourished individual. Statistics have shown that children from 5 to 10 years are not as subject to the disease as they are at a later age. During the first five years the child is in the home; from 5 to 10 he is much in the fresh air, going to and from school. After the age of 10 years he begins to crowd to get through school. He eats a hurried breakfast, perhaps before the rest of the family are ready for it; he hurries to the schoolhouse and at noon hurries home to dinner. He eats hurriedly and rushes back to school again. He hurries home in the evening and prepares his lessons for the next day. It is no wonder that at 15 years of age tuberculosis

increases at such a striking rate. The period when we should begin the fight against tuberculosis is during the first ten years of the child's life, giving plenty of nourishing food, plenty of fresh air and thus building up the power of resistance.

DR. T. G. ALLEN, Chicago: In the treatment of tuberculosis—and this applies especially to fresh air—personal observation and absolute control of the individual through the nurse is necessary, as someone has already said, for the family will not give the patient the necessary fresh air throughout the twenty-four hours without such supervision on the part of the nurse. There are many children spending five or six hours a day in school who ought not to be in school, but out of doors instead, in order to get the twenty-four hours of fresh air. Architecture is of importance and worthy of consideration, but since we are powerless to do anything in that direction, the next best thing is to hammer away at this idea of fresh air twenty-four hours a day; and we should see that children are kept in the open air, not simply tell the mother to keep them in it. Not only should we take the children out of school, if we have any suspicion of tuberculosis, but if a child is below par in any way, we should not send him to school at all until he is 8 or 9 years old and has some of that physique which only an outdoor life can give.

THE MENOPAUSE.*

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In this paper no attempt has been made to summarize the heretofore expressed views of others, nor to refute or corroborate statistics, but merely to express personal views obtained from personal observation.

The term menopause may signify widely different ideas, not only to doctor and patient, but to different doctors and even more to different women. Every medical man realizes that the period during which the menopause is in process of establishment is a trying one to every woman. It comes at a time when she is inclined to the development of malignant growths and degenerations, and when various and extremely troublesome nervous phenomena have come to be expected. To the less well informed this conjunction has from time immemorial furnished a most convenient scapegoat, and it is still a common experience of every gynecologist to have women come to him seeking relief from symptoms attributed by some nonplussed general practitioner to the "impending" or "beginning" menopause, wherein the most careful and painstaking anamnesis and physical examination fail to reveal the slightest evidence of such "impending" or "beginning" menopause, but wherein that same careful investigation succeeds in revealing a very evident but quite different cause for the symptoms. Those who thus attribute all sort of independent ailments to a problematical menopause seem to believe that in thus classing them they have done all that is necessary, as they practically invariably leave matters to time to remedy, thus coupling inefficiency in diagnosis to inefficiency of therapeutics.

To the woman the significance of the menopause varies as her personality. Many women, having had relatives or acquaintances afflicted with malignant disease at this epoch, look forward to its approach with actual dread, thus greatly heightening the natural tendency to nervous symptoms. Others dread it because they have seen some case in which every nervous manifestation arising for ten years was attributed to the

* Read in the Section on Obstetrics and Diseases of Women of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.