

Here I am certain, no adequate provisions have as yet been made in the case of Institution children. When we consider the intimate relationship existing between the teeth and the digestive processes, and how dependent we are upon our daily supplies of food for life itself; that in the child's mouth during the years of infancy and up to adolescence, there is occurring more or less constantly the eruption of different sets of these appendages, that the moral and orderly course of dentition is prone to be disturbed and retarded by many causes, that any interference with this process is sure to result in malformation, or premature destruction of tissue, to say nothing of resulting cosmetic defects, and that all this reacts promptly and decisively upon the individual's physical well being, the necessity for preserving the teeth in a healthy condition becomes of paramount importance from the standpoint of personal hygiene. Indeed, so forcibly has this idea been impressed upon thoughtful men, that Osier has said recently, that he considered it of greater importance to the nation that the question of sound teeth be intelligently considered than that the consumption of alcohol be restricted, important as the latter problem is. '

Personally, my acquaintance with the Institution Child and his physical needs, gained after many years of observation, has convinced me that no question affecting his bodily needs takes precedence of this, nor calls for such prompt and radical measures of relief from the consequences of by-past hygienic neglect, and nowhere is the need of competent, forceful instruction in the necessity of daily care and oversight more imperative.

Eye-strain more or less severe, the result of refractive errors manifesting itself in headache, Anorexia, and inability to respond to instruction during school life, is an exceedingly common affection or rather condition, and one that is becoming more pronounced from year to year. Unless relieved by appropriate measures its consequences may be disastrous to the individual's entire after life, through the nerve unbalance established at the most plastic and formative period of his life.

The manifold ill effects due to the presence of adenoid growths in the posterior naso-pharynx are becoming so well recognized even by the laity that, it is only necessary to emphasize the need for their removal at the earliest possible moment, in order to forestall the many conditions of ill health, and retarded development prone to follow in their wake.

The important point to be remembered is that a systematic examination of any large number of children will reveal their presence in a far larger percentage of cases than is popularly supposed, thus accentuating the need for greater care on the part of the physician in order that they be not overlooked.

Furthermore, as childhood and adolescence constitute the periods of life during which the acute infections are most liable to attack the individual and as many of these diseases gain entrance to the body through the route of the mouth and upper respiratory tract it is doubly important from the standpoint of preventive medicine, that these parts be maintained in as normal a condition as possible in order that pathogenic germs be prevented from lodgment in the tissues. Of many other and important matters of personal hygiene—I have not time to speak, but it should be noted with great satisfaction, that the time has now arrived after centuries

spent in weary struggling up to the light of the present day, when the vast and far reaching importance of public and private health in the life and vitality of the nation is being tardily recognized, and it is accepted as an indubitable fact that, national greatness and national decay are dependent upon physical rather than moral conditions.

And beginning with the individual life in the morning of its existence, in the infant and child, the best interests of the state, society, and the community, are most valuably conserved by urging and enforcing upon all people an intelligent conception of those principles of hygiene whereby "growth is made more perfect, life more vigorous, decay less rapid, death more remote."

THE HYGIENE OF THE INMATE AND THE NECESSARY SANITATION OF THE INSTITUTION, FROM THE STANDPOINT OF THE SCHOOL FOR THE FEEBLEMINDED.

(By A. R. T. Wylie, M. D., Faribault.)

The importance of the question of hygiene and sanitation increases as the population becomes more and more concentrated and is most acute in our institutions, since there the population is most intimately and closely associated and the mental capacity of the inmates does not constrain them to take the average care of their persons and belongings.

The first in importance of these questions in the care of our children is prevention of the introduction of infectious diseases. A reception ward would be most desirable in these cases. In recent years we have been particularly fortunate in this regard—there has been no epidemic of importance that has been brought to us by this means. Some years ago there was an epidemic of measles that was brought to us by a new arrival in which there were some sixty-eight cases and six deaths resulted. In protecting ourselves from contagious diseases already in the institution we have found an early diagnosis and prompt isolation the most important means of control. The employes, however, have given us much more trouble in this respect and the relation of the sick employe to the institution is an important and difficult problem. They frequently take great chances in exposing themselves to contagion and when sick are very slow to apply to the institution physician so that an early decision in their case is very rare, and frequently, if they suspect they are ill with contagious disease they will consult an outside physician who they think will be much less strict than one employed by the institution. In this way our recent epidemic of small pox was brought into the institution and probably some of our diphtheria. Recently we prevented an epidemic of measles by isolating an employe, who was ill with the same, although she had exposed herself, when ill with the disease to many of our children.

The state of the body affects the mental condition, consequently our children, if comfortable, are much easier to care for. The clothing is an important item in their comfort—it should be clean; it should be seasonable—cool in the warmer weather and warm in cold weather. The hot

sultry weather has a very disturbing influence on our children—it makes them more noisy and irritable and much more difficult to control. Many of them have poor circulation and consequently need warmer clothing in the winter time. We have many who keep themselves as close to the radiator as possible during very cold months. The fit of the garment is an important item with us and has to be given particular attention. For example: An ill-fitting shoe is frequently the cause of corns on the feet. Many of our girls take particular pride in their clothing and it is very desirable that they should be provided with clothing which they consider pretty. The clothing should be well aired at night. It is the custom in our low grade buildings to spread the clothes on chairs in the day rooms so that it is well aired and dried when it will be needed in the morning. The general bathing rule of our institution is that each child should be bathed once a week and as much oftener as necessary. With our low grade children we found a brush necessary and particular care must be given to the folds of the skin. A thorough scrubbing in this regard keeps down the odor which many people regard as characteristic of such institutions. While it is probably true that there is a characteristic odor produced by the secretions of the skin of feeble-minded persons, yet in the great majority of instances it is due to lack of cleanliness and thoroughness in bathing. Strict attention to these measures practically eradicates it from our institution.

The day rooms should be cheerful. These insure their comfort and their well being—plenty of sunshine and plenty of fresh air. The ventilation in our newer buildings is taken care of by pressure fans run by power drawing the air from the outside through tempering coils. This produces an abundance of warm fresh air. However, one fault with the present system is that the intakes are too close to the ground and on dusty, windy days the dirt from the outside is pumped all over the buildings. Some sort of an air filter or possibly a higher intake would be a very desirable improvement here. Our toilet rooms have in addition an exhaust fan for their proper ventilation.

The feeding of low grade children may be defined as the "Whole thing" in their care. If they are fed the proper things and enough they will be comfortable, happy, and easily cared for. They have quite marked likes and dislikes and particular attention must be given to this. The efficient care of low grade children demands the greatest skill of their caretakers—in fact, it is one of the highest forms of skilled labor. It must be purely individualized for no two of them can be treated exactly alike and it is the thorough knowledge that the attendant has of each individual child that brings about the best care of that child in its physical, mental and social spheres.

SANITATION.

The disposal of wastes, such as have a bearing on the general health, is the chief problem of our sanitation. And in a community as closely associated as ours almost its whole group of institution wastes has a bearing on this problem.

In the main group of buildings the sewage is discharged into the city sewer and eventually finds its way into the river. This line in several places has become broken and at certain times contaminates the air of several of our buildings with sewer gas. As the institution has grown large, the "fall" for the more distant buildings has become too small and gives trouble, especially in rainy weather, producing flooded basements.

The farm group and men's epileptic group of buildings are too far away to be connected to this line. For them a sewage disposal plant is under construction, the septic tank is practically finished while the filter beds are yet to be constructed. And in fact such a plant should be constructed to care for the whole volume of our sewage.

But the more particular feature of this problem which our institution affords is the care of the filthy patient, who, on account of his habits, is a menace to himself and all who are around him. In buildings for this class of patients the toilet room should have first consideration and the rest of the building constructed around it. The surfacing of these rooms should be non-absorbable material—as for example,—tile floors and marble wains coting. They should have plenty of sunlight and fresh air, preferably by forced ventilation.

Range closets with enamel iron seats are to be preferred both on account of cleanliness and cost of operation. The fixtures can be hidden so as not to be readily interfered with. The common single seat closet, with our children, is continually giving trouble—the fixtures being pulled to pieces or falling down. Then again, the outlet from the range closet can be screened, thus protecting the sewer from being plugged up. For nearly every thing moveable in our Institution has been found in the sewers at one time or another.

The number of closet stools in our low grade buildings has rarely been sufficient. This has necessitated the use of chamber chairs. These consist of the ordinary Douglas chair adapted to that purpose. These are at best a make-shift, poorly meeting the sanitary requirements. However, a daily bath in caustic soda makes them passable. An enameled iron chamber chair is on the market and is to be preferred when, these chairs have to be used, but they are not preferable to the properly established range closet.

The most sanitary floor for this class is the tile. We use wood in all our day rooms but the objection here is that the continual scrubbing, due to the numerous "accidents" keeps the wood moist, especially in the cracks, and forms the proper habitat for the bacillus, which we have recently been told is the cause of the institution odor.

The establishment of proper habits and a proper diet are the two most efficient means of control of the filthy patient. Regular habits induced by being placed on stool can be formed in 9 cases out of 10 and persisted in will in time reduce the number of filthy patients 90 per cent. The food must be thoroughly cooked and unfermented—half cooked cereals and sour bread will make all sorts of trouble in this regard.

Soiled bed linen is at present washed out by hand at the time and later sent to the laundry. A better plan would be to have the linen fall from the clothes chute into a disinfecting solution and when convenient to be washed off with a hose in a specially constructed tub—at least once a day.

The mattresses are protected by rubber sheets. These eventually wear so the mattresses become soiled and have to be made over. The hair which is used again should be disinfected—preferably by steam. We have made some plans for this but they have not, as yet, been worked out.

Physical exercise is also helpful here. In the Massachusetts institution the boys who worked on the stone pile were found much improved in this respect.

In the disposal of institution wastes, garbage comes first. This in our institution is collected every day and fed to the hogs. This should be kept in covered iron containers in places inaccessible to the inmates. Garbage eating is by no means unknown among our low grade children, although as far as we are able to determine they are well fed.

The non-edible garbage, pickles, fish bones, rotten vegetables, are at present thrown out. Tin cans are a difficult thing to dispose of. They contain more or less nourishment and the dump where they are placed forms a feeding ground for rats, which multiply with astonishing rapidity. Rats are not only destructive in destroying clothing and carrying off property but in severe weather they are driven into the buildings and form a menace to the public health. It has been found impossible to get rid of them as long as these feeding grounds are so numerous and bountiful.

It has been planned to build an incinerator—constructed so that the dry yard waste, sweepings, hospital waste, wood, etc., with the help of an extra fire when necessary will burn up this non-edible garbage and the edible matter in the tin cans.

The cans can then be thrown away and the feeding grounds of the rats will be destroyed and this pest will thus be eliminated.

Waste paper is now being taken from our Institution by outside parties who, we understand, bail it and ship it to the paper mills. Heretofore we have been burning it.

GENERAL PRINCIPLES OF HYGIENE IN PUBLIC INSTITUTIONS.

(By Dr. H. W. Hill, Epidemiologist, Minnesota State Board of Health.)

Epidemiologist: Minnesota State Board of Health.

Mr. Chairman and Gentlemen: The excellent papers which have preceded this have broken the ice very nicely for me, and have brought out a great many points which it is necessary to have in mind in considering the further points which I want to develop here.

Before proceeding I ought to tell you my particular business in life. My business is the study of epidemics, the study of how diseases are spread, and the attempt to prevent them by preventing their spread. I am an epidemiologist, and I think I am the only person in the country who has the official title of epidemiologist. I have made a very special study of this subject for a number of years, and the subject is becoming more and more important every day.

The general principles of hygiene in public institutions, as far as we understand it, are the same as those for families, schools, camps, villages,

cities, and all aggregations of people everywhere. Of course, in the public institution the difficulties are multiplied because of the concentration of people there and their peculiar characteristics, but the fact remains that food, clothing, sleep, and exercise are the physiological essentials of life in the public institution just as they are in the family.

Now, connected with each of these items is the item of cleanliness, which particularly appeals to us because our business is the prevention of the spread of infectious diseases of all kinds, which includes tuberculosis, diphtheria, scarlet fever, etc. By cleanliness we do not mean aesthetic cleanliness. Aesthetic cleanliness has almost nothing to do with disease. The cleanliness that we are interested in is that which consists in freedom from the discharges of people, because it is in the discharges of people that bacteria, or germs of the disease exist.

The relation of air to disease. While the relation of temperature and humidity is most important for comfort, probably the breathing over and over again of the same air is not as injurious to vitality as we often think. It has in itself almost nothing to do with the transmission of infectious diseases. The part that the air plays is as a vehicle for discharges carried in the form of dried sputum, mouth spray, or pulverized bowel discharges. Mouth spray is produced from the mouths of all people when they are singing, laughing, talking, sneezing, or making any explosive noise with the mouth. As I am speaking, I am undoubtedly spraying saliva. This mouth spray is the principal difficulty connected with air in relation to the spread of disease, and, the greater the crowd of people, the more closely associated they are, the more they talk, laugh, sing, sneeze, etc., the more that factor is going to count". As a matter of fact, at a five o'clock tea, where a lot of people are crowded together, usually everybody present, gets a sample in his mouth of the mouth contents of every other person.

In relation to the air, there is great danger from flies. The fly is the greatest air carrier of disease that we know of in this country, in fly time. No private house, no public institution, should be without thorough screening of all the inlets available to flies. The flies that get in, in spite of screens, should be destroyed. Screens should be used freely in every public institution afflicted with flies.

With regard to diet: Of course we must have good food, properly prepared, and good teeth to eat it with. It must be properly eaten, and it must be given in proper amounts at proper times, and under proper attention to excretion. All that relates to the physiological features of food. But food as a carrier of disease is very important. The original sources of supply must be considered, and the transit of the food from the original source to the mouth of the consumer must be guarded at every step. In the institution itself—beginning with those who prepare the food for the cook, then the handlers and waiters, the people who lay the table and so handle the knives, forks, and spoons, at all those stages the food constantly receives the discharges of other people because the people who handle the food get their discharges on their fingers and transfer them to everything they handle. The cook, the waiter, and all who come in contact with the food, are constantly putting the hand to the mouth, and get mouth dis-