

York up to 1890. A great many of these cases had been treated by his predecessor, and the plan of treatment had been one of masterful inactivity and many of these cases have practically perfect functional joints. Many of the joints have good motion and are as good as other limbs. The comparison, therefore, as far as function is concerned, was very much in favor of the protective treatment. With the modern protection, such as Dr. Townsend employs, there would be a still greater comparison in favor of this method. That much good is to be accomplished along the line mentioned is unquestionable. The results which I spoke of as being obtained by Dr. Gibney were in cases treated in a large orthopedic hospital where the conditions were not nearly so good for recovery as they would be in private practice in smaller cities.

Dr. T. J. SULLIVAN, Chicago—In Chicago, where we have many such cases, the great trouble all along has been with the general practitioner who does not recognize the conditions nor properly and promptly make the diagnosis, so that when the case comes for treatment a great amount of destruction has already taken place, and a great advantage has been lost. The diagnosis frequently made is that of rheumatism, but we may have a secondary mixed infection and great destructive processes can follow. If the profession can do anything in the way of prevention it is by an early diagnosis. Perhaps Dr. Mayo's operation, mentioned some time ago, of making an incision clear across the knee-joint and opening the joint thoroughly, may enable us to avoid amputation in many cases. Children are frequently surrounded by very bad hygienic conditions and tubercular processes go ahead with great rapidity, so that the most important point is the early diagnosis.

Dr. W. TOWNSEND, closing—As to Dr. Barton's criticisms concerning the closing of the abscess before it becomes infected. I would refer to the portion of my paper dealing with that point.

THE EDUCATION OF THE SENSE OF TOUCH IN FEEBLE-MINDED CHILDREN AND ITS CONNECTION WITH MANUAL AND INDUSTRIAL TRAINING.*

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Dr. Seguin long ago pointed out that the proper way to educate feeble-minded children was by education of the senses, and that the more thoroughly this education was conducted, the better would be the training which could be afterward given. On this occasion I intend to concern myself more especially with the sense of touch, only alluding to the sense of sight when it may be necessary to do so. Mr. Herbert Spencer has shown how by evolution and specialization the other senses, smell, hearing, sound and taste, could have sprung from touch, and how touch is a universal language into which the other senses which are special languages would have to be translated in order to be understood. Thus we know that the vibrations of ether which strike on the retina stimulate the fibers of the optic nerve, and these fibers, when excited, have the power of awakening the sensation of light in the brain. This is one variety of touch. Another variety is that connected with the auditory apparatus. It is well known that bodies which produce sound are themselves in a state of vibration, and this vibration is communicated to the air with which they are in contact and so throw that air into waves in the same way as a stick waved backward and forward in the water throws the water into waves. These aerial waves

entering the ear impinge on the drum of the ear and set it vibrating. This vibration is, by means of delicate structures contained in the ear, communicated to the branches of the auditory nerve in the ear. These being excited produce in the brain the sensation of hearing. It is therefore clear that the sense of touch is a very important one.

But in order that the sense of touch should be well developed it is important that the nervous structures of the skin should be in a normal condition, and that common sensation, as it is called, should be developed to the full amount.

Now, sensation in feeble-minded children is much more dull than in ordinary children, and they do not suffer pain to the same extent. Instances have been known in which the extraction of a tooth seemed to cause little inconvenience and patients occasionally pull out their hair when annoyed. I had a little girl under my care at Darenth, and she at times gave way to violent passion, and would bang her head against a wall or bedstead if not prevented. Dr. Grabham says that he has more than once or twice seen a comparatively intelligent feeble-minded boy sit quietly in a chair while his toe-nail was removed, requiring no one to hold him, and uttering no exclamation, but looking on as if interested, and stating that the operation did not hurt him. He also mentions the case of a child who had severely burned his hand by holding it in a gas flame, and yet he took the first opportunity after recovery to endeavor to renew an experience which did not appear painful to him.

I think the case that impressed on me the idea that feeble-minded patients do not suffer pain to the same extent as sane patients was that of a woman whom I saw in the dining-hall at Darenth Schools. As she was sitting down to dinner I noticed that she looked pale, and made inquiries of the nurse if there was anything the matter with her. Not being satisfied, I asked her to walk upstairs to her bedroom above. On examining her, to my great astonishment, I found that she had fractured her fibula, and yet she was able to walk downstairs and upstairs again, and did not complain of pain. Another sign that sensation is more dull in these feeble-minded children than in ordinary children is that many of them are quite indifferent to cold or heat. Without manifesting the least sensation or apparent inconvenience they will in some cases remain, if allowed, exposed to the heat of the sun in summer and to extreme cold in winter. They have chilblains in winter, owing to their weak circulation, and in summer may get slight sunstroke, but they do not appear to notice either. The skin in chilblains, though attacked, does not give rise to perception, that is, the child does not perceive anything wrong. The sensation of touch exists, but sensation is dulled, either because the perceptive center is wanting, or because the peripheral organ, that is, the skin, can not be relied on to transmit a sensation.

From what has been stated, it is quite clear that common sensation is defective and that the sense of touch must be cultivated. This may be done by making the child grasp hard and soft objects, and by passing his hand over various substances, such as marble, velvet, cloth, silk, etc., so that he may learn to distinguish the different impressions produced by smooth and rough objects. So sensibility to heat and cold may be discriminated by putting the hands into hot and cold water, or by handling bottles or other objects filled with water of different degrees of warmth.

* Presented to the Section on Diseases of Children, at the Fifty-first Annual Meeting of the American Medical Association, held at Atlantic City, N. J., June 5-8, 1909.

Having educated the sense of touch, we can pass on to the training of the hand, or manual training, as it is called. In ordinary kindergarten schools great attention is paid to the training of the hand, but previously to the time when this was first brought into use Seguin was at work training the hands of the feeble-minded, and his methods have to a great extent been incorporated with those which are now in use. If we notice a feeble-minded child who has had no education, we shall find there is a great want of co-ordinating power in the muscles, so that the hands with difficulty perform simple acts, such as picking up a pin or buttoning a coat. In the ordinary child this power is acquired early in life, but in feeble-minded children, especially if they have had no previous education, this power is not acquired until late, and if the education is stopped too soon, it is never acquired at all. Thus, I have seen boys and girls, even at the age of 15 years, unable to dress themselves because their manual training had been completely neglected. Parents have an idea that our only object is to teach their feeble-minded children to read, to write, to count, and to paint, etc., and the idea that manual training is required never enters their mind. No doubt this is due to the fact that ordinary children acquire this manual training almost instinctively, whereas feeble-minded children do not acquire it without being specially instructed in it. If you examine a hand of one of these children you will often find it soft and supple, but in directing the child to use the fingers you will see that the movements are badly directed, because the co-ordinating power which directs these movements is not properly developed. Now, how are we to develop this co-ordinating power? The answer is, by manual training. Of course in every case there must be some will power to put into use, for without a will there never can be anything executed. The training of the hand to useful occupation is simply a later stage of the cultivation of purposive movements aided by the progressive development of the senses and the intelligence. If you notice a baby, you will see a number of spontaneous movements, which are, however, quite purposeless, but as age and intelligence begin to dawn, these spontaneous movements are intuitively, or under the care of the mother, brought into co-ordination and by degrees are made use of for useful purposes. This is what is meant by purposive movements, that is to say, movements which have some purpose in view. In some low-class idiots you will notice quite purposeless, or automatic movements, as they are sometimes called, such as rocking the body to and fro, flicking the fingers before the eyes, and so on, and these movements have to be replaced by purposive movements. Again, you may observe children who suffer from spasmodic or choreiform movements. There are some children who suffer from athetosis, an affection producing constant slow, irregular movements, and in such cases it is necessary to produce a proper co-ordination of the muscular movements. A child suffering from this athetosis should be set to pick up and place in their proper cavities the marbles on a solitaire board. Afterward, what is called a peg-board will be found useful; it is simply a piece of wood with holes in it, in which metallic or wooden pegs have to be placed. The pegs have first to be grasped by the thumb and forefinger and then inserted into the holes in which they fit quite tightly. Then come exercises in threading beads and perforating picture cards, and the building bricks into various forms. All these exercises are exceedingly useful for children suffering from athetosis, as well as for

the restless children who are often met with in this class. In all these exercises the hand is supplemented by the eye, and as a rule the hand and eye always work together. This is clearly recognized to the extent that there is a periodical published monthly called *Hand and Eye*.

Many of the exercises mentioned as useful for promoting co-ordination, such as building bricks, threading beads, perforating picture cards, etc., are useful in promoting manual training.

Size and form boards will also be found useful in cultivating accuracy in grasping objects. The size-board is a flat piece of wood in which are rounded cavities of various sizes, into which circular pieces of wood have to be placed, so that the small piece of wood goes into the small cavity and so on. The form-board is also a flat piece of wood with circular, triangular, square, oblong, etc., cavities, into which the corresponding pieces of wood of circular, triangular, square and oblong shape have to be placed. At first you will notice that the child will endeavor to put the square into the round hole, but as time goes on he will distinguish the varieties of shape and place the square into the square hole, the triangular into the triangular hole, etc.

Another method is to have a cushion covered with spots into which the child sticks pins; this will be found useful for training the hand in fine muscular movements.

Easy drawing lessons, painting and making pictures with colored chalks are also useful. Dressing lessons may be given with advantage, not only individually, but as a class exercise, in order to assist children to put on their clothes. Buttoning and unbuttoning clothes, lacing boots and tying bows or knots not only effect this, but ensure fine adjustments of the fingers, which is so necessary to be learned by the feeble-minded. In some cases it may be necessary to teach the use of the spoon and the knife and fork.

As regards industrial training, many of the kindergarten occupations will prove serviceable preliminaries to handicraft. Paper-weaving is an excellent preparation for sewing and darning, and the instrument which pricks perforated pictures will, in the hands of a skilful pupil, often lead to his employment in the shoemaker's shop; sloyd work, too, may in time lead on to carpentering. It must be remembered that these exercises do not merely train the fingers, but also through them the intelligence as well. Clay modeling, variegated paper mats and bead necklaces not only train the fingers, but excite a spirit of emulation which is useful as a stimulant to the feeble-minded child. There are many children who learn more with their hands than their head, and in these industrial training has an advantage over book-learning, such as reading and writing. Of course, the employment to which the child is put must depend to a great extent on his liking or disliking it. Some, for instance, will prefer carpentering, others gardening, and others cane-making or brush-making. Out-door is, of course, preferable to in-door work, but in this variable climate, especially in winter, it may be difficult to continue it, but where there is a farm this objection does not hold good, as the children or boys are under cover, and as they are generally fond of animals, they will be found to take great interest in the cows, pigs, fowls, etc., which are usually placed there.

For children who live in towns, these occupations can not of course be made use of, so that the country in this respect has a great advantage over the town. For those who live in towns, however, there are many kinds of

work which will be found useful for the employment of manual training. Cane-weaving and basket-making are easily learned, and so are Macramé work; and wood-carving of a simple character may be even learned by advanced cases. Knitting, crochet and darning should of course be learned, as these occupations will come in very useful, not only for the institution, but for the home, if the child should improve sufficiently to be discharged. In the cases of the rich, there is a great range of employment open, but for those who are children of working men much can be done. Work on the farm or in the garden will be of use in the country, and, if in a town, cobbling, tailoring, basket-making and mat-making should be taught. Girls should be trained in domestic work and in the laundry and also in making garments.

I am aware of the somewhat fragmentary nature of these observations, but they have been put together in the course of a busy life. Such as they are, I hope they may be of use to the audience to whom they are addressed.

EUTHANASIA—A MEDICOLEGAL STUDY.

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The last moments of our earthly career, the moments of transition from life to death, present a solemn and direful spectacle. To employ means to keep the dying individual a little longer on life's shore, or to hasten his "shuffling off this mortal coil," is a question which frequently confronts the physician. We are aware that death does not always come gently, "as light winds, wandering through groves of bloom, detach the delicate blossoms from the tree." Most men die from violence or disease; euthanasia is a rarity. Indeed, it is so rare that the afflictions of only a few organs or structures may bring about this kind of dissolution. We refer to organic cardiac diseases and cerebral apoplexy.

The term "euthanasia" has been variously defined, and is still a word of considerable controversy; so much so that "euphoria" was taken to be its synonym, and in a measure, perhaps, rightly so, as we shall see later. Euthanasia is originally derived from the Greek prefix *eu*, meaning well, and *thanatos*, death, or, in other words, "a painless death." This is the etymological signification of the word. There is also another meaning to it, to-wit: "a means for producing an easy death." It is with euthanasia, as expressed in the latter definition, that we shall deal in this paper.

The application of euthanasia is quite ancient. Egypt is, perhaps, its cradle. There it was extensively practiced among its priests, and to a certain extent among the military caste. To these chosen castes, stoicism was unknown; pain, degrading. The priests took upon themselves the solemn oath to alleviate pain whenever it existed, by any means whatsoever. Their medical armamentarium was deficient. Some of the important narcotics and anodynes were absolutely unknown to them. When remedial agents had proved inefficacious, and when death seemed inevitable, euthanasia was the only and last resort. Asia, especially the Orient, follows Egypt in this particular quite closely. The Bible tells us of the easy deaths of Abraham and Moses, namely, that the soul was kissed away by the breath of the Omnipotent. (See Rashi, Bible Commentator.) In fact, the ancient Hebrew considered an easy death to be an earthly reward from Heaven, to which only the

righteous one could lay claim. Of the peaceful departure of Buddha, the Veda and Sanscrit furnish us with a beautiful picture. There it is stated, that on Buddha's command, the most venomous of serpents, the cobra, inserted its fangs in the locality of the forearm, and that Buddha thus died away in ecstasy. This and other methods of producing euthanasia are still in vogue in many parts of India. Rome and Greece offer us traditions of a similar nature. In these two countries the most prevalent method of producing euthanasia was to sever the radial artery. Another favorable mode was a goblet of hemlock. Even in modern times, the Mussulman, and, to some extent, the wily celestial, induce euthanasia by inhaling the fumes of the great somnifer, opium, and roll into everlasting dreams of enchanting hours or extensive rice fields.

What these semi-barbarians do unconsciously many civilized nations do as a result of ripe consideration and scientific decision. In this respect France ranks foremost. Whether those conclusions, however, are compatible with the highest principles of ethics, is the question to be discussed in the present paper.

Judge Simeon E. Baldwin, of New Haven, Conn., in the course of an address delivered before the American Science Association, of which he is president, made the following remarks:

"Of late years, it has become the pride of many of the medical profession to prolong such lives [meaning the lives of patients incurable] at any cost, discomfort and pain to the sufferer, or of suspense or exhaustion to his family. The patient has come to a point where he can not bear the thought of eating. The throat declines to swallow what the stomach is no longer able to digest. He craves nothing but to be let alone. A few hours, and Nature will come to his release. She is already, perhaps, fast throwing him into that happy unconsciousness of pain which we call lethargy. The vital forces have been spent. The mainspring is broken and the watch has run down. It can be made to tick feebly for a minute or two by shaking it hard enough; but *cui bono*? Only another mainspring can mend it. Only another soul, another world, can give value to this human life that is ready to flicker out because it is worn out. . . . Nature has kindly smoothed the sufferer's pillow by leading the way to that gradual exhaustion of the vital powers which follows the refusal of the stomach to receive or to digest food. To force nutriment into the system in such a case through other channels is simply to prolong a useless struggle at the cost of misery to the patient and to the profit of no one but the doctor and the nurse. In determining the nature of a disease, we look for the cause to the symptoms. Nature has so ordered it that symptoms are observed at that time of life when life is most worth saving. A lesion of one organ may then be expected to produce a reaction throughout the system. There is a general sympathy of the parts. On the other hand, in old age, the outward manifestations of an interior lesion seldom indicate that more than one organ is affected, and are often hardly noticeable at all. The patient does not know that he is a patient. There is no occasion that he should. The weakest part of his bodily mechanism has broken down. Why patch it up? Another is hardly less weak, and must soon succumb. Better for him and for his friends that his last days should be unclouded by the apprehension of coming death, and the change come to him quietly as a dream in sleep."

It is evident from what we have cited that Judge Baldwin holds that the physician's duty to save life is