particular value of flexible scar tissue at the flexures of the body and at tendinous areas need not be mentioned.

In large voluntarily supported institutions the economical aspect—the saving in time and material—is also a consideration.

REFERENCE.

¹ W. R. Wilson: Detoxication in the Treatment of Burns, BRITISH MEDICAL JOURNAL, January 8th, 1927, p. 54.

TREATMENT OF ENCEPHALITIS LETHARGICA ASSOCIATED WITH PARKINSONISM BY ULTRA-VIOLET RAYS.

BY

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My object in publishing these few cases is to interest those members of our profession who are not yet acquainted with the possibilities of treatment of this unhappy condition by means of ultra-violet rays. I cannot claim that this line of treatment works miracles, but in some cases it appears to be definitely beneficial.

Some months ago I treated a case of chronic ulcerative tonsillitis by means of ultra-violet rays (mercury vapour lamp); as the tonsils healed quickly, and a persistent rhinitis cleared up also, I was led to think that the local application of ultra-violet rays to the mucous surfaces of the nose and throat might be beneficial in encephalitis lethargica. On June 8th I began to apply it to cases to which I was already giving general ultra-violet rays with what, I think, is a certain measure of success.

My technique, except in Case 5, consisted in stripping the patients in the usual way and application of the multiple carbon arc lamp, back and front, for gradually increasing periods up to half an hour, according to the patient's capacity, twice weekly. In addition to this, local treatment was given to the mucous surfaces of the nose and tonsillar area by a mercury vapour lamp with adaptor for a period of not exceeding two minutes to each area.

The points which seem most noticeable are: improvement in gait, feeling of well-being, diminution of salivation, and relaxation of the fixed expression of the face.

Case 1.—A schoolmaster, aged 33. The onset of the disease occurred two years before he was sent to me in April, 1926. Parkinsonism was well developed; he was unable to do anything for himself. The multiple carbon arc lamp was used twice weekly. After the third application he was able to turn over on the couch; after the fifth he walked much better; after the eighth he was able to help to dress himself; his facial expression also improved very much. On May 22nd he was sent to Birmingham to Dr. Eden for lavage of his sphenoidal sinus, etc.

Case 2.—A schoolboy, aged 14, contracted the disease a year previous to coming to me on April 16th, 1926. He was in a very poor condition—was extremely breathless on going upstairs, and the journey of eight miles in the car upset him very much; his heart was considerably dilated. He had three applications, but died suddenly in his own home four days after the last application.

Case 3.—A coppersmith, aged 42, had had the disease for two years before coming for treatment on April 16th. His improvement has been very marked from the commencement, particularly as to his expression, feeling of well-being, and locomotion. On June 8th, in addition to his general treatment by means of the multiple carbon arc lamp, I gave him short local applications to the nose and throat by means of an adaptor fitted to the mercury vapour lamp; this was continued twice weekly, and has appeared to be very beneficial. He is much straighter in posture, and can use his hands much better.

Case 4.—A joiner, aged 42. Onset of disease two years previous to coming for treatment on April 16th, 1926. The Parkinsonian syndrome was present, but not so well developed in this case; salivation was very troublesome. He also had very marked stiffness of the jaw. He ceased to come on July 27th, but was considerably improved; his jaw is still very stiff, and he is having difficulty in eating.

Case 5.—A married woman, aged 38, in whom the disease first appeared two years previously. She was delivered of a healthy female child (still alive and well) a week after the onset. Came for treatment on April 16th, 1926. She was treated throughout by means of the mercury vapour lamp, local and general, and her condition is much improved.

Case 6.—A labourer, aged 32. Duration of disease fifteen months. He had very marked tremors, and used to get up from bed to come for treatment. He showed some improvement, but not much. He ceased to come June 28th, and has since been confined

to bed. I am inclined to think that this is a case of disseminated sclerosis. He came on April 16th, 1926. Same treatment as above.

Case 7.—A fruiterer, aged 19. Onset of attack two years previously. His gait and posture were very bad; there was much salivation. The posture and gait have much improved, and he is much freer from salivation. He was very mischievous when he first came, but his demeanour is much improved. He came on April 16th, 1926. Same treatment as above.

Case 8.—An insurance agent, aged 49. Date of attack indefinite, but he had been going downhill for six months, and had developed Parkinsonism. Treatment was started on July 14th, 1926, and the patient shows considerable improvement.

Case 9.—An engine-driver, aged 60. Duration of disease three years. He came once, but did not like the treatment, and would not come again.

BREATHING EXERCISES WITH MOVING ARMS.

BY

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SOME systems of physical training still advocate the movements of the arms during a breathing exercise.

Arm movements hamper the expansion of the thorax and the descent of the diaphragm. As soon as the arms are raised the movements of the thorax are lessened, in order that it may supply a steady base on which the arms can pivot; also to supply a fixed base for the muscles which arise from the chest and are attached to the arms to work from. In addition the shoulder girdle has to be moved. Besides the arm group other muscle groups are immediately contracted. The supporting groups of muscles, which keep the body in position while the heavy arms are moving, come into play. The muscles of the leg contract to steady the pelvis, in order that the spine and thorax may be supported on it, and not be swung off their balance by the heavy arms.

The fixation of the pelvis enables the abdominal muscles to contract and hold the thorax firm; this prevents the ribs from rising. If, in addition, the head is thrown back, as is usually recommended, the abdominal muscles can be seen and felt to be rigidly contracted. This effectually prevents the descent of the diaphragm. The spirometer and *x* rays confirm these statements. Keith, in a Hunterian Lecture, says that arm movements increase the pressure in the abdomen. This also impedes the diaphragm.

The mere fact that no gross movement in these abdominal muscles may be seen does not prove that no contraction is taking place. The thin muscle fibres of voluntary muscle supplied by the sympathetic non-medullated nerves may be very strongly contracted without gross evidence to a casual eye, but it can be felt. (Compare the rigidity of the rectus abdominis.)

Nobody would advise the performance of a breathing exercise with a half-pound dumb-bell in each hand. Yet the addition of half a pound to the many pounds weight of each arm would not add much to the total weight which the body has to manipulate. The weight of each arm can be realized by holding it out at right angles to the body for a moment or two. If the weights of dumb-bells are gradually increased to a maximum, the full effect of weights (such as the arms) pivoting on the chest can be observed.

The contraction of the arm muscles spreads not only to the supporting groups—those of the legs, back, and abdomen—but to the whole musculature of the body. Even the jaw and facial muscles are involved. So fixed does the thorax become that breathing is entirely suspended, the chest and diaphragm cease to act. The weight of the arms alone has this effect of hampering the respiration, the dumb-bells only intensify it. The weight of the arms is unbearable to anyone in a condition of respiratory distress. Such interference with respiration also impedes the circulation. Neither, when the arms are raised, can any pull occur on the ribs to elevate them, any muscles tending to oppose the raising of the arms being elongated and their tone inhibited (Sherrington's proprioceptive reflex and reciprocal action of antagonistic muscles).

Exercise of the thorax for normal breathing can best be brought about by graduated runs in the open air. After running, if the respiration is left to itself the movements of the thorax and diaphragm will be abundant and natural.