

soft palate is not affected. Phonation is good, but speech is barely intelligible. Swallowing is difficult, so that food can be taken only in the erect position; solids and semi-solids are taken more easily than liquids. Jaw-jerk is easily elicited, and is very marked.

The arms are almost powerless. The shoulder-girdle muscles are quite paralyzed and atrophied. He can flex the elbow with difficulty so as to bring the hand up on the chest and extend it again, and he can barely flex the wrist and fingers through the action of the long flexors. Power of rotation of the hand is lost. There is much atrophy of the forearms. The muscles of the hands are almost completely atrophied and the hands present the typical claw-like appearance.

Elbow-jerk is marked, but there is no wrist-jerk, the forearm muscle atrophy having advanced too far.

The trunk presents no change from the normal, except lessened expansion of the chest in respiration.

The lower extremities appear well-nourished, and are very firm. Slight fibrillary twitching is present in many parts, chiefly in the inner sides of the thighs, less so in the legs.

The knees are flexed with much difficulty, resistance being continuous during flexion. Knee-jerk is extremely exaggerated. Ankle-clonus is difficult to obtain, owing to the extreme spasticity of the calf muscles, but sufficient relaxation was obtained on one or two occasions to give marked clonus. Tendo-Achilles jerk is marked. There is typical dorsi-flexion of the great toe of the right foot, ankylosis of the left metatarso-phalangeal joint prevents extension of the great toe beyond the straight line. There is no cremastic reflex, but the abdominal is easily obtained.

There are no sensory disturbances, but he gave a history of some girdle pain in the abdomen for a few months, it disappeared a month before admission.

The bladder and bowel functions are normal.

His mental condition is clear, but his emotions are easily disturbed, so that he laughs immoderately and is as easily made to weep.

He went home into the country in June. The bulbar symptoms continued to grow worse so that swallowing became extremely difficult. He died early in September, 1903. An autopsy could not be obtained.

*Remarks.*—The duration of this case was unusually long—two years after the onset of the first symptoms, and fifteen months after the bulbar symptoms first showed themselves. Most cases terminate in about one year.