

- modified Ashworth Scale of muscle spasticity. *Phys Ther* 1987;67:206-7.
- 13 Leo K, Soderberg G. Relationship between perception of joint position sense and limb synergies in patients with hemiplegia. *Phys Ther* 1981;61:1433-7.
 - 14 Scholz J. Reliability and validity of the WATSMART™ three-dimensional optoelectric motion analysis system. *Phys Ther* 1989;69:679-89.
 - 15 Fitts PM. The information capacity of the human motor system in controlling the amplitude of movement. *J Exp Psychol* 1954;47:381-91.
 - 16 Wallace SA, Newell KM. Visual control of discrete aiming movements. *Quart J Exp Psychol* 1983;35A:311-21.
 - 17 Arbib MA. Schemas for the temporal organization of behaviour. *Hum Neurobiol* 1985;4:63-72.
 - 18 Georgopoulos AP. On reaching. *Ann Rev Neurosci* 1986; 9:147-70.
 - 19 Vorro JS, Hobart D. Kinematic and myoelectric analysis of skill acquisition: I. 90 cm subject group. *Arch Phys Med Rehab* 1981;62:575-82.
 - 20 Hammond MC, Fitts SS, Kraft GH, Nutter PB, Trotter MJ, Robinson LM. Co-concentration in the hemiparetic forearm: Quantitative EMG evaluation. *Arch Phys Med Rehab* 1988;69:348-51.
 - 21 Brooks VB, Cooke JD, Thomas JS. The continuity of movements. In: Stein RB, Pearson KG, Smith RS, Redford JB, eds, *Control of posture and locomotion*. New York: Plenum Press, 1973:257-72.
 - 22 Fetters L, Todd J. Quantitative assessment of infant reaching movements. *J Motor Behav* 1987;19:147-66.
 - 23 Siegel S. *Nonparametric statistics for the behavioural sciences*. New York: McGraw-Hill, 1956.
 - 24 Snedecor GW, Cochran WG. *Statistical methods*. 7th edn. Ames: Iowa State University Press, 1980.
 - 25 Wing AM, Miller E. Research Note: Peak velocity timing invariance. *Psychol Res* 1984;46:121-7.
 - 26 Basmajian JV, DeLuca CJ. *Muscles alive: Their functions revealed by electromyography* (5th edn). Baltimore: Williams and Wilkins, 1985.
 - 27 Soechting JF, Lacquaniti F. Coordination of arm and wrist motion during a reaching task. *Neurosci* 1982;2: 299-408.
 - 28 Nagasaki H. Asymmetric velocity and acceleration profiles of human arm movements. *Exp Brain Res* 1989;74: 319-26.
 - 29 Brooks VB. Some examples of programmed limb movements. *Brain Res* 1974;71:299-308.
 - 30 Winstein CJ. Motor learning considerations in stroke rehabilitation. In: Duncan PW, Badke MB, eds, *Stroke rehabilitation: The recovery of motor control*. Chicago: Year Book Medical Publishers, 1987:109-34.
 - 31 Hay L. Spatial-temporal analysis of movements in children: Motor programs versus feedback in the development of reaching. *J Motor Behav* 1979;11:189-200.
 - 32 Bushnell EW. The decline of visually guided reaching during infancy. *Infant behaviour and development* 1985; 8:139-55.
 - 33 Soechting JF, Lacquaniti F. Invariant characteristics of a pointing movement in man. *J Neurosci* 1981;1:710-20.
 - 34 Van Hofsten C. Development of visually directed reaching: The approach phase. *J Hum Movement Stud* 1979;5: 160-78.

John Locke and the trigeminal neuralgia of the Countess of Northumberland

Although early descriptions of tic douloureux can be inferred from the writings of Avicenna, the most convincing early description was of the suffering physician and philosopher Johannes Laurentius Bausch (1605-65) described by Drs JM Fehr and Elias Schmidt in volume 2 of the published proceedings of the Imperial Leopoldinian Academy of Natural Sciences in 1671.¹ Of the English contributions, John Locke the famous physician and philosopher described the condition in a series of letters to Dr John Mapletoft in 1677.² The unfortunate patient was the Countess of Northumberland, wife of the Ambassador to France:

Paris, 4th December, 1677

“... On Thursday night last I was sent for to My Lady Ambassadice, whom I found in a fit of such violent and exquisite torment that ... it forced her to such cries and shrieks as you would expect from one upon the rack, to which I believe hers was an equal torment, which extended itself all over the right side of her face and mouth. When the fit came, there was, to use My Lady's own expression of it, as it were a flash of fire all of a suddaine shot into all those parts, and at every one of those twitches made her shreeke out, her mouth was constantly drawn on the right side towards the right eare by repeated convulsive motions ... These violent fits terminated on a suddaine, and then My Lady seemed to be perfectly well ... Speaking was apt to put her into

these fits; sometimes opening her mouth to take anything, or touching her gums, especially in places where she used to finde these throbbings; pressing the side of her face by lying on it were also apt to put her in these fits. These fits lasted sometimes longer, sometimes shorter ... at intervals between them not halfe an hower, commonly much shorter ...”

Paris, 22 December, '77

“... I believe the drawing of those two teeth, especially the last, hath injur'd some nerve, and soe makes it very apt to be provoked, and draws its neighbours into consent; yet by what My Lady informed me, since violence of her pains have been over, I have reason to suspect there is an ancients fault in the nerves of that side ...”

Later accounts by Wepfer, Nicolaus André (who called it tic douloureux), John and his nephew Samuel Fothergill, and later Charles Bell were to elaborate and elucidate some of the features, possible causes and treatments.

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- 1 Lewy FH. The first authentic case of major trigeminal neuralgia and some comments on the history of this disease. *Ann Med Hist* 1938;10:247-50.
- 2 Dewhurst K. A symposium on trigeminal neuralgia with contributions by Locke, Sydenham, and other eminent seventeenth century physicians disease. *Ann J Hist Med Allied Sci* 1957;12:21-36.