

**Original article****□ The discovery of tics: a spectacular history**

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**SUMMARY:** Singular forms of expression (verbal and motor tics), sometimes accompanied by more complex oral and gestural manifestations, were long considered mere biographical curiosities, and were only at a later date studied as pathological symptoms in a medical context. The term 'tic' has a precise onomatopoeic significance; it reflects a sharp snap, and was used in veterinary medicine from the latter half of the 17th century to describe the symptoms of a respiratory disease in horses. By the 1800s, clinical observation revealed that this "twitching" behaviour also occurred in man. At this time, the growing interest in the brain coincided with the first stirrings of medical nosography. In this climate, the French physician Jean-Marc Gaspard Itard (1775-1838) described, in 1825, the peculiar behaviour of the Marquis de Dampiere, a French noblewoman afflicted by numerous complex phonic and gestural tics. It was also around this time that "the father of Neurology", Jean-Martin Charcot (1825-1896), began to distinguish between clinical conditions that were caused by organic, neurological phenomena, like epilepsy, and those that were, instead, manifestations of psychological malaise, as hysteria. In 1885, Charcot's favourite pupil, George Gilles de la Tourette (1857-1904), after careful observation of the signs and symptoms of ticcing patients admitted to the Salpêtrière hospital, described the "maladie des tics" we now know today as Tourette syndrome.

**KEY WORDS:** History of Medicine, Tics, Tourette syndrome.

**□ INTRODUCTION**

Strange, repetitive and often startling movements; odd, guttural and often incomprehensible sounds; and illogical, "rude" or shocking behaviour have always fascinated both medical doctors and the man in the street. This is especially true when displayed by people in the public eye, like the celebrated Marquis de Dampiere, whose quirks have been faithfully recorded, first by their contemporaries and later by historians. From a historical perspective, these singular forms of expression (*motor and phonic tics*), which may or may not present simultaneously, and may even be seen in far more complex vocal or gestural behaviours (*behavioural tics*), were long considered

*biographical curiosities*. It was not until a later date that they were recognised as *pathological manifestations* of a medical condition. Even now the nosography of tics is still disputed<sup>(1)</sup>, and it is no easy task to trace the historical evolution of the description of these manifestations and their wildly different interpretations over the ages. This endeavour is further complicated by the fact that these manifestations were often described within a complex of other afflictions, or ascribed to diverse pathological conditions like facial dystonia or paralysis. The term tic has also taken on different meanings over time; take, for example, *tic douloureux*, which was long used to describe trigeminal neuralgia, which manifests as a painful hemifacial spasm or twitch. Although hyperkinesia and/or dyski-

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**Figure 1.** Peter Romanov I, known as Peter the Great (1672-1725) is just one of the illustrious historical personages reported to have a characteristic tic (portrait of Tsar Peter I, 1717, oil on canvas by Jean-Marc Nattier).

nesias of the facial muscles, as they are far more evident clinically than those occurring in other parts of the body, were the first to be described with any thoroughness, it was still a long time before these symptoms were distinguished from what we now recognize as tics.

#### □ BIOGRAPHICAL CURIOSITIES AND LITERARY INTEREST

The first description of a compulsive disorder now recognizable as a tic was provided by Gaius Suetonius Tranquillus, commonly known as Suetonius (circa 70-140 AD), in his *De Vita Caesarum*. Talking about Emperor Domitian, Suetonius wrote, “in the beginning of his reign, he used to spend daily an hour by himself in private, during which time he did nothing else but catch flies, and stick them through the body with a sharp pin”<sup>(19)</sup>. Posterity has also provided us with precise information regarding the behaviour of Louis

de Bourbon, Prince of Condé (1621-1686) - a nobleman in the court of Louis XIV of France, the famous Sun King - who it appears often attempted to contain his involuntary and unstoppable cries and barking by stuffing his mouth with stones or bundles of fabric<sup>(18)</sup>. Samuel Johnson (1709-1784), English poet, man of letters and a highly regarded figure in 18th-century London, was also apparently prone to “bizarre movements”<sup>(15)</sup>.

The odd behaviour of illustrious personages such as these also began to have an influence on the literature of the age, and from the 1700s onwards, several characters afflicted with tics (evident and clumsy movements) began to appear on the stage. In the farce *Le gallant Jardinier* (The Winsome Gardener), by Florent Carton Dancourt (1661-1725), we find a description of “monsieur Caton,” who “*est bien le plus vilain mâtin, le plus disgracié mortel, avec son tic et son bégaiement*” (is verily the most unpleasant mastiff, the most wretched mortal, with his tics and his stammering). This was not merely confined to the characters. In the biography of Molière, written by Jean-Léonor de Grimarest (1659-1713) in 1705, the latter affirms that the former: “*dans les commencements, même dans la province, il paroissoit mauvais comédien à bien des gens; peut-être à cause d’un hoquet ou tic de gorge qu’il avoit, et qui rendait d’abord son jeu désagréable à ceux qui ne le connoissoient pas*” (at first, even in the provinces, appeared to many a terrible actor, perhaps because of a hiccup or tic of his throat that made his mimicry unpleasant to those who did not know him).

Even royalty were not spared the indignity of such behaviour. Dangeau, who wrote about Peter the Great (Figure 1) in his *Memoirs*, “It is not true that the Czar had poison administered to him in his infancy: the tic he has does not arise from that cause, it is natural to him”<sup>(4)</sup>. Saint-Simeon, in his *Memoirs* elaborates, “his glance majestic, and gracious when he meant it to be so, otherwise stern and fierce; and with all this a tic, which was not frequent but convulsed his eyes and his whole face and was very alarming. It lasted a moment, with a wandering, terrible look, and then he recovered immediately”<sup>(6)</sup>.

#### □ PATHOLOGICAL MANIFESTATIONS IN ANCIENT MEDICINE

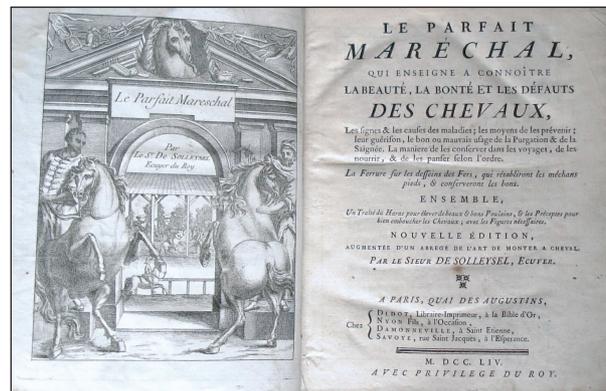
Aulus Cornelius Celsus (1st century AD) in his *De medicina*, and Aretaeus of Cappadocia (2nd century

AD) in his *De causis et natura morborum diuturnorum*, both describe the manifestation of a facial tic. “Contraction of the eyelid, or the parts and muscles about the jaws and chin, to either side by spasmodic distortion, is called canine spasm.”<sup>(2)</sup> Galen too (2nd century AD), in his *De locis affectis*, and later Caelius Aurelianus (5th century AD) in *De morbis acutis et chronicis*, also describes a ticcing malady (*raptus caninus*), while Paul of Aegina (7th century AD), in his *Medical Compendium*, illustrates a case of facial tic. Similar descriptions can be found in Arabic medicine: Rhazes (9th century AD) in *De re medicina* and *De tortura oris*, and Avicenna (10th century AD) in *Liber canonicus*. However, there is the possibility that these Authors confused facial tics and spasms with disturbances linked to paralysis of the seventh cranial nerve or tetanus. It is likely that this confusion continued even into the 1500s, as Petrus Forestus, in his *De spasma cinico*, states “*id est convulsione canina seu oris tortura*”, and by the Italian Girolamo Mercuriale, or Hieronymi Mercurialis, to give him his Latin appellation, in his chapter *De affectionis del Medicus praticus*, also seems to be referring to some kind of facial palsy<sup>(3)</sup>.

## □ THE ETYMOLOGY AND SEMANTICS OF THE TERM

The term “tic” has a precise onomatopoeic significance, calling to mind a sharp snap, and Édouard Brissaud (1852-1909) affirms that it is doubtless of vernacular origin. He writes in a foreword to *Tics and their treatment* by Henry Meige and E. Feindel, “The meaning of the word tic is so precise that a better adaptation of a name to an idea, or of an idea to a name, is scarcely conceivable, while the fact of its occurrence in so many languages points to a certain specificity in its definition”<sup>(14)</sup>. This explains why the terms are so similar in the various European languages: *tic* or *tique* in French, *tic* or *tick* in English, *ticchio* in Italian, *tico* in Spanish, and *zucken, ziehen, zugen, tucken, ticket* and *tick* in the various German dialects. The term tic was initially used in the early 17th century in veterinary medicine to describe the symptoms of a twitching disease of horses. Jacques De Solleysel (Figure 2) gives us more information about this condition in his *Le parfait mareschal* (The compleat horseman) (Figure 3), which was first published in 1664: “A man should also, before concluding the bargain, observe if the horse be not a

**Figure 2.** Jacques De Solleysel (1617 - 1680), squire at the court of the King of France, applied the ancient theory of humours to horses and was the first to describe tics as a pathological manifestation.



**Figure 3.** Frontispiece of the book *Le parfait mareschal*, published in 1664, in which De Solleysel describes a ticcing phenomenon in horses.

*ticker*, that is subject to the infirmity, or rather bad custom, called the *tick*, which is known by perceiving either his under or upper-teeth all decay'd and worn, but yet a great deal better by seeing him eat; for he will press against the edge of the manger with his upper teeth, and give a kind of belch through his throat, which action and noise is called the tick, and with this infirmity or bad habit, I would not take a horse for many reasons. First, a horse which ticketh thus, loseth a part of his oats as he is eating them, because as he ticketh he openeth his mouth, and so they fall from it; this is the first inconveniency. The second is, that by continual ticking he so filleth his body with wind, that it will be apt to give him a cholick which may make him burst. In the third place, a horse which is a ticker, having once become lean, can but with great difficulty be fatten'd and made lusty again, and they are also commonly but light

body'd. Lastly, this Infirmity or bad custom communicates itself to other horses, not by contagion or infection, but horses, especially those which are young, learn it of one another. [...] After having enquired into the reasons which might prompt and move a horse to tick, and what ease he could procure to himself by this kind of belching, I imagined that it was meer humour and fancy in horses, which giveth them the same kind of satisfaction that men have in smoking tobacco"<sup>(1)</sup>. Thus, this Author, with great perspicacity, had already noted and revealed how the tic possessed, among its other characteristics, the propensity to induce imitation (echopraxia) in predisposed subjects. Interestingly, still today, if this "bad Habit" is not declared when a horse is sold, it renders the contract null and void.

#### □ PATHOLOGICAL MANIFESTATIONS IN ROMANTIC AND CLINICAL MEDICINE

On the cusp of the 19th century, the advent of clinical observation enabled identification of these motor tic phenomena in humans, and the first descriptions of phonic, or vocal, tics also began to emerge in the literature of this time. However, the distinction between ticcing and convulsions had not yet been made, and, according to Cruchet, the term tic was used to label a whole host of completely different phenomena<sup>(9)</sup>. Subjects affected by "strange movements" (like the apparently self-important head-tossing noted by Cruchet and "that twitch of the shoulder appreciated only by such as have served in the infantry; that twitch which is meant to raise the knapsack and momentarily to lighten its load; it is a trick of the soldier's which with his elevation to officer's rank becomes a tic"<sup>(9,21)</sup> described by De Vigny) were poorly tolerated in society and, above all, were neither understood nor treated in any way by the medical community<sup>(7,8)</sup>, and the 18th-century view of tic as a "recurring, distasteful act" prevailed.

Armand Trousseau (1801-1867), the famous Parisian physician, in his *Les cliniques médicales de l'Hôtel Dieu* (Lectures on clinical medicine delivered at the Hôtel-Dieu), in Paris 1862, gives us a good early definition of tics from a medical perspective, "instantaneous, rapid, involuntary contractions, generally restricted to a small number of muscles, those of the face usually, but which may also affect the muscles of the neck, trunk, or limbs." and goes on to say, "Everyone must have seen such cases. Thus, there may be

only rapid winking, a convulsive pulling of the cheek, of the *ala nasi*, and of the commissure of the lips, which gives to the face a grinning look; or there may be nodding of the head, abrupt and transient contortion of the neck recurring every minute; or again, the shoulder is shrugged, and the abdominal muscles or the diaphragm is convulsively agitated; in a word, the disease may produce an infinite variety of strange movements which baffle all description. The complaint is essentially chronic, and is, so to say, part and parcel of the individual's constitution; he is the only one, sometimes, who does not notice it: it is cured with difficulty: but it is a strange circumstance that it may shift from one place to another. When by treatment, and by exercising the affected muscles, a tic has at last been cured, it may soon reappear elsewhere"<sup>(20)</sup>.

Although it was starting to become clear that these were pathological afflictions, tics were still being confused with spasmic conditions and seen as oddities, and, typical of romantic phase of medicine in the Romantic era, much attention was paid to the signs and symptoms, but little attempt was made to understand their causes, and, apart from "exercising the affected muscles", no treatments were forthcoming. It was only in a subsequent neurological phase of medical discovery that these maladies began to be understood and classified nosologically.

#### □ CLINICAL OBSERVATION AND THE DISTINCTION BETWEEN THE NEUROLOGICAL AND THE PSYCHOLOGICAL

As the 19th century went on, there was a growing interest in the mysterious workings of the brain, which coincided with the first stirrings of medical nosography. The study of the anatomy, physiology and pathologies of the nervous system was prompted by a growing desire to catalogue the existing knowledge of the natural world. The most famous example of this illuminist thirst for knowledge is, of course, Linneaus' (1707-1778) taxonomic classification of living species. This created the cultural precedent for gathering together what was known about disease and attempting to organise it in some way, thereby laying the foundations for neurology as we know it today.

It was in this hothouse climate, in 1825, that the French physician Jean-Marc Gaspard Itard (1775-

1838) provided us with a fascinating description of the numerous complex phonic and gestural tics that afflicted Marquis de Dampiere, a French noblewoman.

Jean-Martin Charcot (1825-1896), the widely recognised “father of Neurology” followed shortly thereafter, and made an important distinction between clinical maladies of neurological origin, like epileptic seizures, and those that could be ascribed to a psychological basis, like hysteria.

Later on, it was Charcot’s favourite pupil, George Gilles de la Tourette (1857-1904) (Figure 4), who sought to determine the relationship between tics like those exhibited by the poor Marquis de Dampiere, and the strange “startle” behaviours noted in the “Jumping Frenchmen of Maine” and several inhabitants of Malaysia and Siberia<sup>(10)</sup>. These bizarre jumping movements were often accompanied by imitative behaviours, involuntary oaths, and explicit sexual manifestations, and it was precisely by comparing these odd phenomena with the signs and symptoms of his *tiqueurs* at the Salpêtrière that Gilles de la Tourette arrived at a description of the “*maladie des tics*”<sup>(5)</sup>.

The particular *habitus mentale* that the Charcot school instilled in attendees of its lecture halls and clinic, combined with the particular “epistemological moment”, that the approach to “nervous and mental maladies” underwent towards the end of the 19th century provided the ideal ground for nosographic classification of a ‘new’ syndrome. As Charcot traced a distinct line between epilepsy (a neurological disease) and hysteria (a psychiatric disturbance), so too did Gilles de la Tourette, using the same approach as his mentor, seek to distinguish a ‘new’ clinical presentation - *la maladie des tics convulsifs* - which he maintained was an expression of a complex medical problem that had hitherto been ignored, rather than a distasteful behavioural issue, as it was previously considered.

Using the Marquis de Dampiere, previously described by Itard, as an example, he argued that she was afflicted by *psychological damage*, and not a *moral complaint*, making her the first emblematic case of what we now know today as Tourette syndrome. Indeed, the description of the condition furnished by de la Tourette is still considered highly accurate today, and only small departures from the original can be discerned in modern-day diagnostic manuals.

The ‘multiple tic disease’ or ‘malady of a thousand



**Figure 4.** Georges Albert Édouard Brutus Gilles de la Tourette (1857-1904), the French neurologist who, in 1884, was the first to systematically describe the symptoms of the “ticking disease”, which today bears his name. The plate was photographed by an E. Pirou, who might be Eugène Pirou (1841-1909).

tics’, as it is often referred to due to the multiplicity and variability of its symptom manifestations (motor, behavioural and phonic tics) has a very particular clinical presentation. Very few human diseases present such an intricate interweaving of neurobiological, anatomical and functional factors that connect the body with the activity of the brain (the “neurological” and the “mental”) and bring about such a complex and variable series of symptoms in the same subject. The articulated semiology typical of this disorder explains why, in nosographical circles, this illness is often catalogued as a ‘syndrome’ rather than a ‘disease’, forever associated with the name of the man who ‘discovered’ it, Gilles de la Tourette<sup>(12)</sup>. Tourette syndrome is a disorder that, for all its peculiarity, is well placed to represent the paradigm of the meeting point - and point of departure - between epistemology and neurobiology in terms of an organic ‘nervous disease’ and a psychic ‘mental disease’, a distinction between body and soul<sup>(16)</sup>.

## □ CONCLUSIONS

The history of the discovery of tics provides a methodological model of how clinical observation enabled medicine, over time, particularly in the second half of the 1800s, to identify real pathological neurological diseases and distinguish them from purely psychological disorders on the basis of simple usual behaviour patterns. Still today tics can be existential conditions that rise to the role of “expressive metaphors”. From a neuroanthropological perspective, they are provocative invitations to reflect upon the necessity and importance of anti-conventional behaviours within our society. The homologation that dominates the world today, globalising not only knowledge but behaviour, ever more conditioned by emerging trends, impoverishes our existence, leaving no place for diversity or originality. An unusual jerk of the limbs is deemed out of place, an unexpected verbalisation disturbs the apparent tranquility or mundane clamour of our daily lives, an odd expressive conduct shakes up the behavioural routine of an individual and alters the frenetic rhythm of a society obsessed with work; all these tics are considered eccentric and unsettling. These kinds of manifestations almost appear to be provocations that throw into turmoil the order of a single being, and thereby appear to threaten the very fabric of society. Although poorly tolerated on the whole, these ‘disconcerting’ behavioural patterns could be reinterpreted as healthy signs of protest against the conformist regime that characterises our time, signs of a desire, too long repressed, for freedom and rebellion. To adjust, contain or regulate an individual’s tics may be useful for them, but to correct, suppress or abolish them entirely is tantamount to repression, and the afflicted may undergo irreparable damage if one attempts to do so. This is something that today’s medical community should bear in mind when it proposes treatments for tics. Seen in this way, tics become behavioural excesses exasperated by the liberty to choose our own path and to shape our personal destinies. They are anthropological metaphors of our ability to interact with society and our environment. To have discovered, understood and learnt how to keep them in check, if we so choose, is an important conquest in modern neurology, and the symbolic significance underlying them should not be lost sight of in modern neuroscience<sup>(17)</sup>.

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