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**A CURIOSITY IN THE HISTORY OF SCIENCES:
THE WORDS “MEGRIM” AND “MIGRAINE”**

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Vertigo has been described by medical doctors since Antiquity, but the condition is not limited to human medicine. It is also interesting to note that vertigo-related disorders were long only accidentally mentioned in the descriptions of migraine. Indeed, one had to wait until 1831 for “ophthalmic migraine” to take these disorders into account, and 1988 for the *International Headache Society* to acknowledge vertigo as a symptom of aura in “basilar migraine” – which was given the better name of *basilar-type migraine* in 2004.

From this point of view, veterinary medicine presents a particular interest because, for centuries, diseases mainly affecting horses – called in French “migraine,” “mal de tête” (headache), “douleur de tête” (head pain), or in English “megrim(s),” “head-ach,” “pain,” and for which it is not self-evident that they are in any way related with the conditions that bear these names in humans – have been connected with visual and vestibular impairments.

Whatever is the relationship between the human and animal pathologies, some impressive descriptions, written by Anglo-Saxon authors for the most part, seem to have played a significant role in the history of migraine.

Two questions guide our research: a first, historical question is whether these veterinary medicine descriptions were known to medical doctors; the other question is more general and invites one to question not so much the status of animal models, but the interrelations between a given model and what it represents.

Keywords: horse, veterinary medicine, migraine, megrim, vertigo

Vertigo, a complex experience

In human medicine, vertigo is often referred to as a “chameleon” (Brandt, 2004) – a heterogeneous concept, which is consistent with heterogeneous experiences.

Indeed, although vertigo – like pain – is a primitive element of a given pathology, or the sign of a dysfunction, it is not easy to either name or identify. Ordinary language cannot describe it accurately, or the inverse state either (Bonnier, 1904). The word “vertigo” is actually used to describe quite diverse sensations: rotating or twirling sensations, other illusions of movement, dizziness, a sense of imbalance or fainting.

This linguistic failure is even present at the level of the current classification of vertigo syndromes, a classification that highlights different diseases and syndromes, the physiopathological mechanisms of which are, most of the time, still unknown today: Ménière’s disease (Ménière, 1861) (American Academy of Laryngology, 1995), benign paroxysmal positional vertigo (Bárány, 1921) (Dix & Hallpike, 1952), benign paroxysmal vertigo of childhood (Basser, 1964) and benign recurrent vertigo of adulthood (Slater, 1979).

In spite of the difficulty in distinguishing experiences that appear to be similar, and also of the difficulty in elaborating a rigorous concept of “vertigo,” it is acknowledged today that migraine is associated with a number of vestibular disorders (Cass, Ankerstjerne, Yetiser, Furman, Balaban, & Aydogan, 1997). But benign paroxysmal vertigo of childhood (Basser, 1964) is the only condition to be recognized by the *International Headache Society* (IHS) as equivalent to migraine; the IHS also mentions a type of migraine in which vertigo is one of the symptoms of aura, *i.e.* basilar migraine (ICHD-II, 2004) (Bickerstaff, 1961).

Some studies however (Brandt & Strupp, 2006) highlight on the one hand the *clinical* necessity to envisage, besides basilar migraine and benign paroxysmal vertigo of childhood, another form of migraine, *i.e.* “vestibular migraine” (also called – not as appropriately – “migrainous vertigo”); and on the other hand they call for a clarification of a vocabulary that, so far, has been somewhat imprecise (knowing that various expressions have also been used to refer to an identical syndrome). In the units devoted to vertigo, vestibular migraine, although under-diagnosed, probably affects 10 % of the patients, and would therefore exist as a *de facto* medical entity (Brandt & Strupp, 2006) (Neuhauser, Leopold, Brevern, Arnold, & Lempert, 2001). In addition, vertigo can be said to be present in 50 to 70 % of cases of migraine if the definition of ‘vertigo’ includes sensations of dizziness, giddiness and a sense of imbalance (Brandt & Strupp, 2006).

***Megrim*: an ambiguous word**

The history of the relationship between migraine and vertigo is relatively old, and it is based on a linguistic singularity that is peculiar to Anglo-Saxon countries. The link could be considered as quite contingent and arbitrary, but it is a complicated question, as the translations from French to English and from English to French, as well as the exchanges between human medicine and veterinary medicine, did not occur without leaving traces.

The English term *megrim* comes from the French *migraine*, which is itself derived from the Latin *hemicrania* (or from the more frequently used *hemicranium*), after a series of alterations from the Medieval Latin: *hemigranea*, *hemigrania*, *migranea*, *migrana*. These Latin terms were themselves borrowed from the Greek *hemicranion* or *hemicrania* (from *hemisus*, half, and *cranion*, cranium). But before assuming, in the fourteenth century, the quite famous and literal meaning of “pain in one half of the cranium,” the French word “migraine” had in the twelfth century the first and figurative meaning of “pique.” It was used as an adjective during the thirteenth century, in phrases such as “fièvre migraine” (migraine fever) or “goutte migraine” (migraine gout) (which, strictly speaking, meant “pain that only affects a part of the head, ordinarily the temples” (Wartburg, 1952)), and finally acquired a medical acception. This double meaning (“pain in one half of the cranium” and “pique”) continued in French, as can be seen in the seventeenth century from (among other examples) Furetière’s dictionary; indeed, besides the literal and medical meaning, the word had a figurative and familiar meaning (“being boring”):

“Any boring and shocking reality is said to give one a migraine, *i.e.* to cause pain, to give somebody a pain in the head” (« On dit de toute chose ennuyeuse et choquante qu’elle donne la migraine, pour dire du chagrin, qu’elle fait mal à la tête ») (Furetière, 1690).

The English word *megrim* is ambiguous too. When it is used in the singular, it borrows from the French *migraine* its medical acception and then means either “hemicrania” (and by extension severe headache), or *vertigo*, *dizziness*, *giddiness*: according to the *Oxford English Dictionary*, the latter acception is attested as early as in the late sixteenth century (The Oxford English dictionary, 1989).

As far as the plural *megrims* is concerned, it is both informal and colloquial and refers either to a depressive state similar to what the French word *migraine* referred to (“*these are his megrims, firks and melancholies*”) (The Oxford English dictionary, 1989), or, in animals, to the disease called “vertigo.”

The word *megrim(s)* thus has four different meanings: 1) hemicrania; 2) vertigo; 3) melancholia, caprice, whimsical idea, bad mood; 4) (especially in animals)

loss of balance, an abnormal walk and behavior, vertigo. These various meanings may have, at times, overlapped.

The popular – and scientific – history of veterinary medicine bears testimony to these meanings and their overlapping. Used by farriers (*maréchaux*¹ in French), the word “vertigo” is first and foremost a riding stables term that designates the giddiness of the head affecting a horse and degenerating into dementia, the symptoms of which are blurred vision, dizziness, watering of the eye and violent pain, causing the animal to hit his head against the walls, to hide it in his bedding and to lie down only to suddenly stand up again (Diderot, 1765, p. 176).

This disease seems to be different from “head pains” which, in France, refer to diseases that are, on the contrary, unknown to farriers (Solleysel, 1674, p. 205). The difference is re-asserted in later treatises: for example, one can read in the *Avis au peuple sur l'amélioration de ses terres et la santé de ses bestiaux* that “head pain” is manifested in the horse by a hanging head, inflamed eyes and a hot forehead, while “vertigo,” on the other hand, makes the animal stagger, causes a pain in the head forcing the animal to hit it against the walls, and sometimes makes him lose consciousness (Laffont, 1775, pp. 29-30).

The latter pathology affects other animals such as bees, young bulls, heifers, dogs, geese and ewes. For example, between May 25 and June 25, the bees keep flying around the apiary as if dazzled (Lombard, 1812). In ewes, the disorder starts with them losing their appetite, lowering their heads – their eyesight gets dimmed and they turn about; the animals then turn their heads on one side and die within a few days. (Paulet, 1775).

A famous English treatise from the seventeenth century, along with its French translation, is particularly interesting. We are referring to *Markham's masterpiece*, or *Nouveau et savant maréchal*, translated from the English by Foubert:

“The panicles, or thick skins, which cleave to the bones, and cover the whole brain are subject to head-ach, megrim, dizziness, and amazes” (Markham, 1717, p. 32).

« Les membranes qui couvrent le cerveau, [lorsqu'elles sont] affectées, produisent le mal de tête, la micraïne², manie, étourdissement » (Markham, 1666, p. 43).

Markham subsequently differentiates “head-aches” or “head pains” from “vertigo or dizziness.” “Headache,” “megrim” and “pain” are still considered as entirely different from “vertigo” and “dizziness.”

The veterinary medicine of the seventeenth and eighteenth centuries therefore did acknowledge the existence of a disease called “horse migraine;” but

¹ The old French term “maréchal” had two meanings: it first referred to an officer responsible for providing care to horses; then to a servant, and by extension to a craftsman in charge of horse care, notably shoeing (“ferrer” in French); in which case the French term frequently is “maréchal-ferrant”.

² Old French spelling for “migraine.”

apparently this disease was different from any vertigo-related disorders; it was classified among head pains or head diseases, along with frenzy, dementia and rage – as was the case at the time for migraine in human medicine.

On the other hand, numerous other, later texts on veterinary medicine, dating from the nineteenth century for the most part, use the colloquial name “megrim(s)” (attenuated form of apoplexy, or kind of epilepsy³? it does not matter) as a synonym of “vertigo.” One can thus read in Blaine:

“*Epilepsia cerebialis* (...) is known about farriers and horse-men as meagrims, sturdy, or turnsick. It frequently attacks horses during their work (...). When it seizes a horse in exercise he stops short, shakes his head, looks irresolute and wandering, and in this state he continues a few minutes, and then proceeds as before. In more violent cases he falls at once to the ground, or first runs round, and then sinks senseless: the whole system appears agitated by strong convulsions” (Blaine, 1826, p. 471)⁴.

In 1831 and 1832, the *Lancet* published – first in separate articles, then as a supplement – the *Lectures on veterinary medicine*, given by Youatt⁵ in the University of London (Youatt, 1833), of which Gouraud gave an account in France in 1833 in the *Journal des connaissances médico-chirurgicales*⁶ (Gouraud, 1833). According to Youatt, “*megrims in the horse*” result from an unusual flow of blood to the brain, which “will press upon the origins of the nerves” sustaining the animal’s life, therefore producing loss of muscular control and consciousness. The more serious form of this disease is called *sleepy staggers (vertige soporeux)* or *apoplexy*, which is distinct from *vertigo* or *mad staggers (phrénitis)* in French). Overfeeding is the main cause of the congestion: after intense exercise, the horse, once put to rest, eats too eagerly. His stomach distends and his digestion is hindered. The narrow sympathy between the stomach and the brain causes the crisis. A careful groom may notice some of the warning signs, such as lack of appetite, stupor and staggering – which exercise can dissipate for a time. But the symptoms come back: the horse “will be seen with the head low” or “supported against the manger,” will hit the wall, stagger, fall if he is made to move, and finally be unable to move:

“The horse stands dull, sleepy, [or at least unaware of what surrounds him.]⁷ When roused, he looks vacantly around him; perhaps seizes a lock of hay, [but] dozes again with it in his mouth.” [When roused again, he does not know the voice of his master, or his hand either. His final voluntary act is to drink, (...) but] “the drink is returned by the nostril.” [Foam comes to his mouth, the staggering increases, until the animal falls heavily (...); the pulse is slow and concentrated,] “the vein of the neck is evidently swelled, the muzzle is cold, the dung often voided involuntarily; his eyes are [sometimes] open [and] protruded, the pupil is dilated. [The animal] grinds his teeth,” [his face and legs twitch.]

³ For Gamgee, who followed Percivall’s analyses, *megrims*, which is indeed a *sui generis* pathology, was wrongly considered as one and the same disease as epilepsy (Gamgee, 1863).

⁴ First edition, 1802. The 1826 edition is the third edition.

⁵ William Youatt (1776-1847) is notably famous for his treatise on the horse: William Youatt, *The horse*, Londres, Baldwin and Cradock, 1831. He also wrote: *On the structure and the diseases of the horse with their remedies*.

⁶ Journal published by Armand Trousseau, Jacques Lebaudy, Henri Gouraud.

⁷ In square brackets: added by us, according to Gouraud’s French translation.

« Debout, il dort ou paraît dormir, ou au moins n’a pas la conscience des objets environnants. Si on l’éveille, il porte sur lui un regard vide ; peut-être prendra-t-il un peu de foin ; mais après l’avoir à demi mâché, son œil se ferme et il se rendort la bouche pleine. Réveillé de nouveau, il n’entend pas la voix, ne sent pas la main de son maître. Son dernier acte volontaire est pour boire (...), le liquide revient par les narines. L’écume vient à la bouche, le balancement d’un côté à l’autre est de plus en plus marqué, jusqu’à ce que l’animal tombe difficilement (...); le pouls est lent et concentré, la veine jugulaire très gonflée, le museau froid, les selles involontaires ; les yeux sont de temps en temps ouverts et saillants, avec des pupilles dilatées. L’animal grince des dents, et a des mouvements convulsifs de la face et des membres » (Gouraud, 1833, p. 23).

When the attack is not fatal, the horse remains dazed, is subject to half-attacks of vertigo, or becomes blind due to a paralysis of the optic nerve, in which case the term one uses is *glass-eye* (“œil de verre” in French) (Gouraud, 1833). Examining the corpse reveals a congestion of the venous system, but no inflammation. But Youatt, in his conference XLV, says quite literally:

“I am driving my horse: the collar (...) presses on the jugular vein, and prevents the free return of the blood from the head. What is the consequence of this? Why, the animal begins to go a little sluggishly: I perhaps take no notice of this, or, not attributing it to its proper cause, urge him to his former speed. Presently afterwards he stops – stops sometimes as if he were shot, staggers, is deaf to my voice, and scarcely conscious of surrounding objects; he backs a little, the collar ceases to press upon his neck, and he recovers; he shakes his head, looks a little frightened, and goes on again, but without not quite so much spirit as before. This attack is strongly called the megrims (...). Often, however, the matter does not end here (...). He takes a sudden fancy to go round and round, and then he staggers and falls” (Youatt, 1833, p. 13).

As in the case of the dog’s dizziness, which Youatt described in *The dog*, the horse does not recognize the surrounding objects, smells or familiar sounds. He lacks balance and barely seems alive: reduced to a mere vegetative life, he falls, looks asleep, barely chews on his food. The pupils are dilated, the gaze empty. Extremely common in the 1800s, the condition was more frequent in hard-worked farm horses or post horses submitted to exercise that caused them to overeat. But the progress of veterinary medicine on the one hand and the greater attention to what the animals were fed on the other diminished the number of cases from 20 to 1.

Ten years later, Percivall observed from popular language and usage that *megrims* was a non-technical, colloquial term. Although it was imprecise and vague, everybody knew what it meant; and whoever took care of horses knew very well how to recognize the symptoms it caused, so that it was impossible to mistake *megrims* with any other condition. Thus, in accordance with popular tradition, scientific veterinary medicine had to include it in the nosology, list its symptoms, and differentiate it from epilepsy (a few analogies – identical circumstances: sudden attacks, etc. – not being enough for the two conditions to be identical), as well as from frenzy, with which it was once confused; but admit at last that it was vertigo, no more, no less.

“By vertigo – as synonymous with megrims – I do not mean any simple or single symptom of giddiness (...); but I mean, an assemblage of vertiginous symptoms which suddenly attack, and as suddenly disappear, after a manner of a fit; and to which horses all their lives may be at times subject, and yet never experience what we experienced by *staggers*, i.e. encephalitis or phrenitis, or even coma. This makes me say, megrims is a disease *sui generis*; though of what precise or definite nature I am not, at present, prepared to give an opinion”.

In veterinary medicine, *megrims* therefore seemed to be placed in the same category as vertigo, rather than head pains.

These modifications in meaning most probably influenced Piorry’s work on migraine: on the one hand, as we mentioned earlier, farriers were aware of a disease named “migraine du cheval” (horse migraine); and on the other, the condition, first acknowledged to be a pain in the head, was progressively considered by early nineteenth century Anglo-Saxon veterinary medicine as a synonym of vertigo. Indeed, this shift was conducive to the establishment in human medicine of an analogy between migraine and vertigo, as Piorry did in his work on migraine, then on vertigo, asserting as he did that the former was a variety of the latter. Although it is impossible to demonstrate with certainty the direct influence of veterinary medicine on Piorry’s analyses, Liveing stated explicitly what he owed to Blaine and to the use of the term *megrim* in the veterinary and medical traditions. This is the reason why he chose to use this word in the title of his major work, *On megrim, sick-headache, and some allied disorders*, as opposed to the word *migraine*, which however was very much used at the end of the nineteenth century.

However, even though human medicine had not established any systematic relation between migraine and vertigo prior to the 1830s, some links had indeed been made *via* approximations in translation. Markham’s descriptions for horses, contemporary with Bacon’s descriptions, exemplify this particularly well:

“In every *Megrim* or *Vertigo*, there is an obtenebration joined with a semblance of Turning round” (Bacon, 1670, Cent. VIII, § 725, p. 152).

This was first translated into French by Pierre Ambroise in 1631 in accordance with the Anglo-Saxon meaning of *megrim*:

« Et nous voyons qu’en toute défaillance et évanouissement, nos yeux sont obscurcis avec une espèce de Vertigo » (Bacon, 1631, p. 230).

But at the very end of the eighteenth century, Antoine Lasalle “Frenchified” the term *megrim* and translated it into *migraine*:

« Lorsqu’on a la migraine ou des vertiges, on a une sorte de nuage sur la vue, et l’on s’imagine aussi voir tourner tous les objets » (Bacon, an VIII-an XI, vol. 9, cent. VIII, § 725, pp. 36-40).

Not only were the Frenchified meaning of *megrim* and the strictly Anglo-Saxon meaning quite distinct here, but also the more popular uses did not confuse them either, as we can see from a didactic work by John Maubray, who differentiated

between different types of vertigo in women: when the patient was under the impression her head was spinning, the terms *megrim* or *vertigo* were used; when the patient said she believed the exterior objects were spinning, then the terms *tenebricosa* or *scotomia* were used (Maubray, 1724).

Conclusion

Among the various acceptions of the term *megrim*, 1) hemicrania in human beings, 2) dizziness in human beings, 3) fancy, low spirits, and vapors in human beings, 4) vertigo in animals, only two, in the end, led to confusion. Indeed, the common acception *low spirits* (or *vapors*), sometimes implied, was quite distinct from the other meanings. Similarly, the acceptions peculiar to human medicine, *i.e.* hemicrania and dizziness, did not cause any difficulty. What actually – and paradoxically – was a source of error were apparently non-interchangeable (because they belonged to profoundly heterogeneous fields) acceptions: the acception 1) human hemicrania, and the acception 4) vertigo, only used in veterinary medicine.

The descriptions show that although medicine did not exclude vertigo as a symptom of *megrim*, the analogy between migraine and vertigo, which became a *topos* at the end of the nineteenth century, was not established in human medicine first, but in veterinary medicine.

To be more precise, this analogy was not so much made by veterinary medicine as such, although the symptoms of vertigo provide in themselves a link between pain in the head and ophthalmic symptoms, as by two linguistic facts that did not escape veterinarians: namely 1) a difficulty in translating the English word *megrims* into French, 2) the existence, besides vertigo, of an animal disease called “*head-ach.*” Confusion was therefore possible between *megrims*, *megrim*, vertigo, headache and migraine. It is also hard to say how much and how well veterinary texts were known to physicians⁸. What we are sure of is that *manuals* on hippology all comprised a paragraph or two on these diseases, so the latter must have been, at the very least, quite common.

⁸ Did Piorry read Youatt’s specific article, of which Gouraud gave an account in the *Journal des connaissances médico-chirurgicales*? Whatever the case may be, he wrote an article in the same issue: « Sur l’arthrite spontanée aiguë », p. 12 to 15, *i.e.* 8 pages before Gouraud’s article, which Piorry must have noticed. His first text on migraine had been written two years before this article was published, but his work on vertigo was much later. As for Youatt’s *Lectures on veterinary medicine, delivered in the University of London*, they were published in the *Lancet*, volume 17, Dec. 10, 1831, p. 349-357, in volume 17, March 10, 1832, p. 813-818, and in volume 18, Sept. 8, 1832, p. 708-712.

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