

LETTER TO THE EDITOR

Flesh in the age of reason: the modern foundations of body and soul, and a dialogue by Jeremy Collier (1695)

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Sir,

In Volume 127, Issue 10 of *Brain* a review of the late Roy Porter's last, great book *Flesh in the age of reason* (2003) appeared (Myer, 2004). Porter, who died in 2002, was Professor in the Social History of Medicine at the Wellcome Trust Centre for the History of Medicine at University College, London, and Editor of the *Cambridge illustrated history of medicine* (Browne, 2003). Summarizing Porter's chapter on Samuel Johnson (entitled *Johnson and incorporated minds*), the author of the review wrote:

'Porter tells us that Johnson mocks attempts to locate the soul within the body: the brain is a "quagmire", "clammy" and, quoting high Church divine Jeremy Collier, "an odd sort of bog for fancy to paddle in". This is all charmingly picturesque, but my copy of *Johnson's Dictionary* does not confirm; I find nothing of the sort under "soul" or "brain" and no mention of Collier. Has Porter misremembered or is he quoting another source? Porter's footnotes tended to be chaotic until final revision. He died before they could be systematized and his present editors decided to do without them.'

Given the overall positive assessment of Porter's book by the author ('an intellectual treat') we are convinced that this was said with an *absit iniuria verbis* in mind. Nonetheless, Porter deserves to be defended in this particular point, all the more as he cannot defend himself. The description of the brain as being a 'quagmire' and 'clammy' is in fact in Johnson's dictionary. It can be found on page 1615 of the classic 1755 edition. The complete quotation reads, 'The brain is of such a clammy consistence, that it can no more retain motion than a quagmire', and is taken from the *Vanity of Dogmatizing* (first printed in 1661; Johnson obviously

used the second edition, which was published under the title *Scep sis scientifica, or Confest ignorance, the way to science*, and is dated 1665) by Joseph Glanvill, F.R.S., a 17th century English philosopher. The same entry holds Johnson's own definition of 'Quágmire': 'n.s. [that is, quakemire.] A shaking marsh; a bog that trembles under the feet'. Glanvill's use of the word 'quagmire' in this context might well reflect his knowledge of Shakespeare's plays. As the theatre buffs among the readers will certainly know, Lord Talbot/Earl of Shrewsbury threatens the Frenchmen with the following exclamation: 'Pucelle or puzzel, dolphin or dogfish, / Your hearts I'll stamp out with my horse's heels, / And make a quagmire of your mingled brains' (*Henry VI*, Part I, 1.4.570–572). The Collier quotation is to be found on page 1439 of the classic edition, and reads at full length: 'The brain has a very unpromising aspect for thinking: it looks like an odd sort of bog for fancy to paddle in'. According to Johnson, 'to paddle' is to be understood here in the sense of playing in the water rather than in the sense of rowing. This example, for which Johnson does not provide a reference and which he does not cite literally, is taken from the second volume of Jeremy Collier's *Miscellanies upon moral subjects* (London, 1695; later editions were entitled *Essays upon several moral subjects*). It is part of a now widely forgotten dialogue (Fig 1) between a Hylarchus and a Lucretianus (both aptronymically named) on the nature and the seat of thought, which touches many then contemporary (and partly surprisingly modern) conceptions upon the way the brain and the senses work, and which we therefore consider worth citing at greater length here for the enjoyment of those interested in the history of neuroscience; all the more as Collier's works are

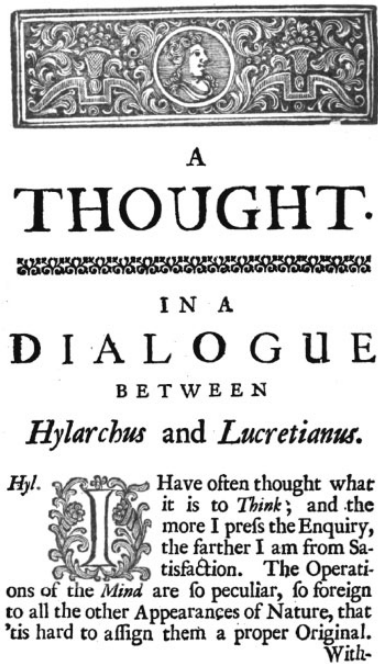


Figure 1 Title page of the dialogue *A Thought* by Jeremy Collier (taken from the 1722 edition of Collier's *Essays upon several moral subjects*, London, printed for D. Brown, R. Sare, B. Tooke, G. Strahan, W. Mears, and F. Clay).

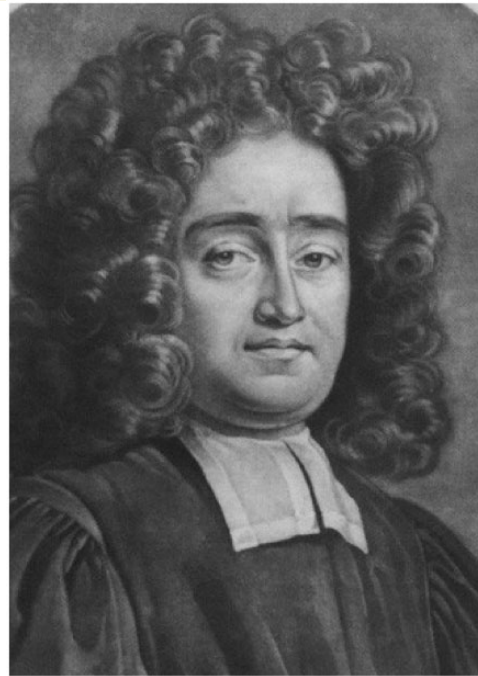


Figure 2 Jeremy Collier (1650–1726).

currently not available in print (see the online Supplementary material for a transcription of the full text):

Luc. I am surpriz'd to find you entangled in so slender a Difficulty. *Thinking* every Body knows is the Work of the *Brain*: That is the Forge in which all the Speculations of the Understanding, and the Appetites of the *Will*, are hammer'd out.

Hyl. I confess Possibilities go a great way. But in my Opinion, the *Brain* has a very unpromising Aspect for such a Business. It looks like an odd sort of Bog for *Fancy* to paddle in. When I can see people tread *Sense* out of Mud, as they do Eels, then I may be declined to believe that *Brains* and *Reasoning* are of Kin; in the mean time I desire to be excused.

Luc. I'm sorry your Conceptions are so Unphilosophical. You seem to forget that the *Brain* has a great many small *Fibres*, or Strings in its Texture; which according to the different Stroke they receive from the *Animal Spirits*, awaken correspondent Idea, and give us those Notices of Things which we call *Thoughts*.

Hyl. A little clearer, if you please.

Luc. You must know then, that the Nerves, which are their Origin in the *Brain*, are branched into a great many fine Subdivisions, and spread upon all the Surface of the Body, They are the channels in which the *Animal Spirits* move: So that as soon as any foreign Object presses upon the *Sense*, those *Spirits* which are posted upon the Out-guards, immediately take the Alarm, and scower off to the *Brain*, which is the Head-Quarters, or Office of *Intelligence* and there they make their Report of what has happen'd.

Hyl. I suppose they return loaden like Bees, and disburthen themselves in the *Cells* much after the same manner?

Luc. I have told you the Information is convey'd by striking upon the *Fibres*, and giving them a particular Bent; which imprints the Character of the Object upon the Mind.

Hyl. I should almost as soon imagine, that the striking a Viol with the Bow, should entertain the Instrument with its own Musick: But as I remember, some say the *Spirits* Tilt so violently, that they make Holes where they strike; which are no sooner open, but the *Ideas* run into them as fast as may be. And after they have lain there a little while, grow as drowsy as Dormice, unless they are rowed by a new Summons. By the way, what are *Animal Spirits*; methinks they perform strange Things?

Luc. They are a kind of little Pellets, wrought off the finer Parts of the Blood.

Hyl. Then I perceive they are Bodies all this while.

Luc. Yes. But admirably furnish'd for Dispatch and Intelligence.

For us, with the knowledge of our days, Lucretianus's stance that thinking 'is the work of the brain' seems much more conceivable and 'natural' than the position of Hylarchus, who—as becomes clear in the further course of the dialogue—strongly maintains the view that the brain cannot be the seat of the mind. However, the latter idea was certainly widely accepted throughout the history of Western philosophy and was anything but unusual for his contemporaries. Aristotelian and Thomistic conceptions (*sic autem potentia quae est intellectus, nullius corporis actus est, quia eius operatio non fit per organum corporale; De unitate intellectus contra Averroistas, cap. 1*) were still influential, and remnants of ancient cardiocentric ideas can be traced as far as the 17th century (Harvey).

Collier (Fig 2) and Glanvill are not only linked by their comparison of the brain to a 'quagmire', 'bog', or 'mud'—a comparison which reminds us of Aristotle's description of the brain as a compound of 'water and earth' (*Ὅτι δ' ἐστὶν ὁ ἐγκέφαλος κοινὸς ὕδατος καὶ γῆς; De partibus animalium II,7*)—but indeed shared similar philosophical positions and were not chosen by Johnson

accidentally: both (and with them Johnson, as pointed out by Porter) originally took a dualistic, Cartesian stance, which at that time, was a comfortable position for those who appreciated the progress science had made but wanted to avoid the consequences of materialism. The latter direction of thought, in its mechanistic implementation, had seen a revival in the 17th century, beginning with the works of Bacon and Hobbes in England and Gassend in France, and mechanistic views prevailed in physiology at that time. Collier's dialogue can be understood as a (nonetheless very entertaining) pamphlet, setting out to ridicule the materialistic position, which—given its mechanistic shortcomings and still often speculative conceptions (progress in neuroscience lagged behind philosophical considerations)—may in fact have deserved some of that criticism. What Collier called in his dialogue the 'System of a Mechanical Soul', was thought by him and many of his contemporaries to carry the danger of determinism and thus of amorality (Drury, 2009): 'loose Practices must have their supporting Principle', as Collier puts it [a loss of morality was also Collier's main concern as an acerbic critic of restoration theatre, for which he is best remembered today (Collier, 1698)]. Such worries were certainly shared by others: Collier's dialogues remained in print until the 1730s (the eighth and last edition appeared in 1732), suggesting a sustained interest in his writings. During the following decades a marked shift from mechanistic towards non-materialist conceptions in English physiology took place, brought about by the rise of vitalism (Brown, 1974). However, the dialogue is not totally imbalanced. Confronted by Lucretianus with the fact that his scheme could not explain the way matter and mind interact (one of the main arguments urged against Descartes' dualism), though 'nothing is more certain than that those two maintain a large Correspondence' (Luc. explains, 'You see we move our Limbs at our Pleasure, and receive various Impressions according to the Objects of Sense, and the Habits of Constitution. But how the Soul can move the Body, or be affected by it, without Extension, is past my comprehension'), Hylarchus—and through him Collier—replies that he has no answer, and finally retreats from his Cartesian position to a view that has been rightly described as occasionalistic (Ressler, 1937): God is the only effective cause; there is no interaction between mind and body and, in its strictest consequences, not even between minds or between bodies ['these effects may not result from any mutual Agency, but merely from the Will of a third Power (...)' 'Tis probable the Divine Oeconomy' [a common term in Divinity, but also one evoking a contrasting concept to that of 'animal oeconomy', the term by which physiologists then referred to their subject matter (Brown, 1981)] has settled such an interchangeable Train of *Thoughts*, and *Motions*, between Soul and Body, that as soon as the occasional Hints spring out, the other will as constantly follow, as if they were produced by the most immediate *Causality*']. The author's 'occasionalistic deviation' from

Descartes may also partly explain why no mention of Descartes' famous pineal hypothesis is made in the dialogue.

The mind–body problem is still widely unresolved today, although a vast number of philosophical positions have been developed since Descartes (re)posed the question in his *La description du corps humain* more than 350 years ago, many of them directly accompanying the progresses made by 20th century neuroscience (Kim, 1995). Despite Collier's raillery regarding the concept of his Lucretianus, which was surely justified, at least in part, by its speculative nature, it is fascinating for the modern reader how close the terminology of the latter is to our modern understanding of brain function. 'Nerve fibres', which are branched into a great many fine subdivisions and spread upon the entire body, transmit information from the brain, 'the Head-Quarters, or Office of Intelligence', to the periphery and back; the *loaded* spirits transport the information and are *discharged* in the brain; the information is transmitted by small, very fine (compared to the fibres) *particles* or *pellets*, which within the brain awaken 'Notices of Things which we call Thoughts'. For us (an ahistorical perspective, certainly), this picturesque language evokes the ideas of electrical nerve conduction, axoplasmic flow, and synaptic neurotransmitters. The relativism carried by the wording 'which we *call* [emphasis ours] *Thoughts*', even reminds of attempts by modern physicalists to reduce mental states to brain states and to challenge the concepts of 'folk psychology' (Churchland, 1986).

While the concerns regarding the quality of Porter's citations raised in the review were unjustified, as shown here, they have led to the rediscovery of a pearl in Collier's writings and of a precious and so far widely overlooked contribution to the 17th century controversy between mechanist materialists, dualists and idealists about the role of the brain.

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