Guest editorial essay

Chevalier John Taylor, ophthalmiae

“The Eye, that most amazing, that stupendous, that comprehending, that incomprehensible, that miraculous Organ, the Eye, is the Proteus of the Passions, the Herald of the Mind, The Interpreter of the Heart, and the Window of the Soul. The Eye has Dominion over all Things. The World was made for the Eye and the Eye for the World”

These are the opening words uttered by John Taylor of Norwich (figure 1) in an address to students at Oxford (Wood 1930, page 205). Taylor was an oculist of note and notoriety. The note derives from his books on the eye whereas the notoriety relates to his careless couching of cataracts among the nobility of Europe (Coats 1933). Hirschberg (1984) referred to him as “the king among all itinerant oculists”. He was lauded and lamented in equal manner: laudations issued from his own pen (Taylor 1762) and those of his son, also an oculist named John (Taylor 1761); lamentations were uttered by his patients.

Figure 1. Chevalier Taylor by Nicholas Wade. The portrait of John Taylor (1703 – 1772) is derived from an engraving in Caulfield (1820) and is combined with an illustration of Taylor conducting an operation on a hapless patient (derived from an engraving by Thomas Patch in Duke-Elder 1961).
Taylor’s father was a surgeon and his mother an apothecary in Norwich. His early immersion in medicine led him to study surgery under William Cheselden (1688–1752), after which he was advised by John Desaguliers (1683–1744) to specialise on the eye. Taylor became a self-styled “Ophthalmiater, Pontifical, Imperial, and Royal” and his arrogance did much to antagonise his fellow physicians and surgeons. Much of his life was spent travelling around Europe where he ministered to many notables with much theatricality: operating and theatre were rarely so well matched. He was fond of ennobling himself in the countries in which he operated; he appears variously as Chevalier Taylor when writing in French, Ritter von Taylor when his works were published in German, and Cavaliere di Taylor on his visits to Italy. Oculists were often considered to be the quintessential quacks, and Taylor was so represented in William Hogarth’s engraving (figure 2) which was a satirical salute to them. Dr Johnson defined a quack as “a boastful pretender to arts which he does not understand”. With regard to medicine, a quack was “one who proclaims his own medical abilities in publick places”. There were few who quacked louder than Taylor. Eighteenth century ophthalmology in Britain lagged behind that on Continental Europe, and the oculists practicing it were duly designated by this derogatory label: “Among these travelling quacks the name of ‘Chevalier’ Taylor stands pre-eminent for unblushing effrontery, blatant self-adulation, and all the methods of the charlatan” (Coats 1933, page 132). He was known to Dr Johnson who said of him: “Taylor was the most ignorant man I ever knew ... he was an instance of how far impudence will carry ignorance.”

Dr Johnson’s view of Taylor’s unparalleled ignorance was itself overblown. Coats (1933) added to the damning description above the following rider: he was also noted for “mental endowments far above the average of his tribe, and for a real acquaintance

Figure 2. Arms of the Undertakers by William Hogarth from 1736. Taylor is shown at the upper left, carrying his cane upon which an eye is engraved. He is in the dubious company of Mrs Mapp, the bone-setter, and Spot Ward, inventor of a pill or drop accorded remarkable healing powers.
with the contemporary state of ophthalmic knowledge” (page 132). Thus, despite this dubious reputation, he did add to our knowledge of vision. At the age of 24 he published a book, *An Account of the Mechanism of the Eye*, in which he speculated on the problem of accommodation. He adopted the received view that the lens moved in the eye: “it [the aqueous humor] serves moreover for the *Crystalline* Humor to move forward or backward in, as Occasion requires us to see Objects nearer or farther from us. ... For since the Rays proceeding from the luminous Points of nigh Objects divers more than those from more remote Objects, the Power of Making them equally converge at the *Retina* is very probably lodg’d in the *Crystalline* humor; which, according to the different Distances of Objects, approaches nigher to, or removes farther from the *Retina*, and perhaps too assumes a different Convexity” (Taylor 1727, pages 33 and 44).

However, it is in the province of binocular vision that Taylor made his most marked contributions, and these were published in French (Taylor 1738) then translated into several languages. First, he described an aperture method for presenting different stimuli to each eye (figure 3, left) and used it to examine binocular colour combination: “one takes a piece of blue glass in front the candle E and a piece of red glass in front of the candle D with the intention of distinguishing them one from the other, without changing the quality of the respective images; if then the eyes approach the position that is necessary to look at a distant object, directing the axes of the eyes in the line Gg and Ff one can see a blue candle with the left eye B, and a red candle with the right eye C; and if one looks through the aperture with attention, directing the optic axes in the line dD eE, one sees the blue and red candles together in the aperture A.

*Figure 3.* Left, Taylor’s aperture arrangement for examining binocular vision: “If one places two candles D E, with the same separation as the eyes B C, and if one puts a little plate P Q, in which one had made a small hole of diameter about half a thumb in A, then one fixes the hole of this plate equally distant from the candles and from the eyes; when one looks straight ahead without paying attention to this plate or to any other thing, one sees two holes and two candles; but if one turns the eyes in the direction of the hole, with the intention of looking at it, then one sees only one hole and only one candle; the reason is that in the first case Gg and Ff was where the optic axes were located, and consequently the impressions which were made on e by the candle E and the hole A, had no communication with the impressions which were made on d, by the candle D and the hole A. The fibres on the side e m do not connect to the fibres on the other side d n, but when the points G F in the middle of each eye are carried to e and d, they receive the impression of the candle and of the hole” (1738, pages 169–170). Right, the pathways from the eyes to the brain (from Taylor 1738).
where they will have the appearance of a candle of the colour purple” (Taylor 1738, pages 170–171). Unlike the earlier observations by Desaguliers (1716), he found that colours combined rather than engaged in rivalry.

In the same book Taylor provided the first correct diagram of partial decussation at the optic chiasm (figure 3, right): “a r T and b V T, represent the same fibres of the left eyes, and α T V α and β S V β, the fibres of the right eye. The part r s t which reside in the optic nerve of the left eye, after they meet in the head [at the optic chiasm], are not composed in the same way that they were when they left the eyes; but they are accompanied by the fibres which leave the left side of the fundus of the right eye; ie, that a r T leaves b V T at the point of their meeting T in the head, and the fibres join themselves to α V T which leave the left side of the right eye, and are together the body Tutfr” (Taylor 1738, page 174). In Query XV of his Opticks Isaac Newton (1704, pages 136–137) asked whether the fibres from corresponding regions of each eye were united before they reached the brain, adding a telling reflection on species differences in the visual pathways to the brain. In fact, he had carried out experiments on optic nerves around 1682 but he did not publish details of them; he made the first representation of partial decussation at the optic chiasm and proposed a theory of binocular single vision based upon it. However, fibres from corresponding points in the two retinas united at the chiasm (see Wade 2008). Taylor, probably basing his diagram on shrewd speculation, represented their independence. Fibres in the optic nerve diverged after the optic chiasm, with those from the left halves of each retina projecting to the left part of the brain, and vice versa. It took over a century before this was firmly established anatomically.

Chevalier Taylor is remembered more for his bombast than his books. His operations on the eye were probably no less successful than those of his contemporaries, and his treatment of strabismus contained ideas that were to take a century to become incorporated into ophthalmology (Hirschberg 1984). His occasional insights should not be overshadowed by his astonishing arrogance.

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