

diseases'.<sup>24</sup> The figure of the Victorian doctor, watch in hand, became familiar, and leaves an impression that he shared in Floyer's earnest attempts to use pulse timing so that 'we may know the natural pulse and the excesses and defects from this in disease'.<sup>25</sup>

<sup>24</sup> Robert J. Graves, *Clinical Lectures on the Practice of Medicine*, reprinted from the second edition, London, New Sydenham Society, 1864. Lecture IV: The Pulse.

<sup>25</sup> Sir John Floyer, *The Physician's Pulse-Watch*, Vol. 1, London, S. Smith and B. Walford, 1707, p. 13.

#### ACKNOWLEDGEMENTS

The late Mr. T. P. Camerer Cuss and Mr. Terence Cuss showed me a Watson pulse-watch and introduced me to the horological details. Information kindly supplied by Mr. F. A. B. Ward and Mr. H. Alan Lloyd led me to the pulse-watch. It is a pleasure to acknowledge the assistance of the staff of the Wellcome Institute of the History of Medicine.

D. D. GIBBS

---

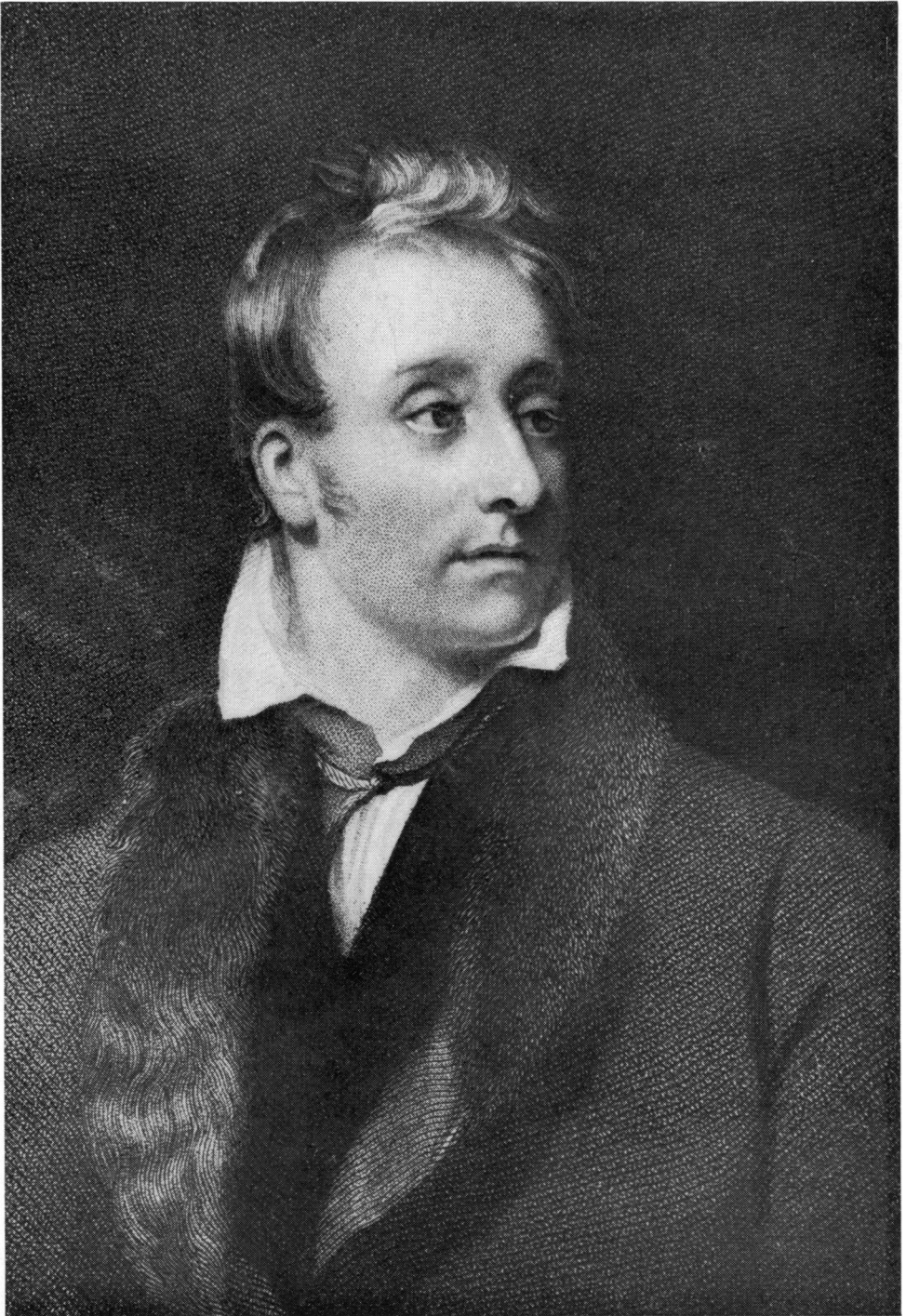
### PROPHYLACTIC ENUCLEATION IN SYMPATHETIC OPHTHALMITIS THE EVOLUTION OF AN HEROIC FORM OF TREATMENT

TO ENUCLEATE an eye as a prophylactic measure against sympathetic ophthalmitis always requires an act of courage. To have initiated such treatment originally must have been heroic, especially as it was known that the second eye might eventually be the more seriously affected. Yet the development of this form of treatment in the nineteenth century was a slow and highly responsible process, based on speculation, observation and careful thought.

The germ of this idea may be found in the writings of James Wardrop (1782–1869) (fig. 1), a Scottish surgeon of character and insight, fond of field sports and with considerable knowledge of horses. Indeed he wrote an article entitled *An Essay on Diseases of the Eye of the Horse and their Treatment*. Between 1808 and 1818 Wardrop's *Essays on the Morbid Anatomy of the Human Eye* was published in Edinburgh. In the chapter 'Of the Sympathies of the Eye' dealing with bilateral diseases of the eye in general, the following passage is found:

. . . there is a disease, frequent in the eye of the horse, having the appearance of a specific inflammation, which usually first affects one eye and then the other, almost always sooner or later destroying vision. It is known among some Farriers, that, if the eye first affected with this disease suppurates and sinks into the orbit, the disease does not attack the other eye, or subsides if it has commenced in it. Thus they have adopted a practice of destroying altogether the diseased eye, in order to save the other which is rudely done by putting lime between the eyelids, or thrusting a nail into the cavity of the eyeball, so as to excite violent inflammation and suppuration. I have frequently succeeded in saving one eye of the horse by adopting this practice; but I destroyed the eye simply by making an incision in the cornea, and discharging through it the lens and vitreous humour. In some diseases of the human eye, where the disease makes a similar progress, first affecting one eye and then the other with complete blindness, the practice so successful in animals might, by judicious discrimination, be beneficially adopted.<sup>1</sup>

Yet the concept of sympathetic ophthalmitis as a separate disease that affects the second eye some time after an injury to the first was not clearly defined until William Mackenzie of Glasgow described it in the later editions of his famous textbook



**James Wardrop (1782-1869). Engraving by J. Thompson after a painting by Geddes.  
From T. J. Pettigrew, *Medical Portrait Gallery*, vol. 2, London and Paris, Fisher, 1838-40.**



*A Practical Treatise on the Diseases of the Eye.* Mackenzie introduced his section on 'Reflex or Sympathetic Ophthalmitis' in the fourth edition (1854) with these words:

I have now to direct the attention of the reader to a disease, which [is], as it generally proves, in the long run, intractable, and as it is the result, in the one eye, of a previous mechanical injury, which has already greatly impaired or destroyed the other [it] involves in its treatment a heavy responsibility on the part of the practitioner. Whenever I see sympathetic ophthalmitis, even in its first stage, I know that I have to contend with an affection which, however slight its present symptoms may be, is one of the most dangerous inflammations to which the organ of vision is exposed.<sup>2</sup>

Mackenzie was sceptical of the treatments available at that time such as the anti-phlogistic treatment which consisted of bleeding the patient, dieting, purgation and other unpleasant remedies designed to reduce inflammation. He therefore searched the literature and his own experience for a fresh approach to this disease. He quoted Wardrop's speculation that had been inspired by his veterinary experience and related this to a practice that had recently been reported concerning the removal of intra-ocular foreign bodies. In the *London Medical Gazette* of 1837 there was a contribution by Samuel Crompton, Esq., which described the practice of a Mr. Barton of the Manchester Eye Institution in removing the fragments of percussion caps that had exploded into the eye. Apparently such an injury was not uncommon and Mr. Crompton reported seven cases. 'In one of these cases the vision of the other eye also, was nearly lost, from sympathetic inflammation; and it is most likely that there would have been a similar termination of the rest, if that treatment, which I shall presently describe, had not been adopted'.<sup>3</sup> Suppuration was never noted in the initial injury and indeed the injured eye often appeared to settle for a while. Soon however irritation, pain and inflammation developed in both the injured and the uninjured eye. Barton believed that the foreign body was the cause of the sympathetic inflammation but he often found his percussion caps very difficult to remove. He therefore used to incise the cornea and sometimes even cut the cornea away so that, if the percussion cap did not present immediately, it was soon extruded on to the poultice or into the wound coagulum. Mackenzie thought that Barton's practice should certainly be adopted in the presence of a foreign body but even where there was none 'why should we hesitate to lay open an eye in which vision is extinguished, if the operation affords a reasonable hope of our being thereby able to save the other?'

It is interesting that both Wardrop's and Barton's cases showed no suppuration of the affected eye before the second eye was involved, but that in both groups of cases infection was almost certainly introduced into the initially affected eye by the successful treatment employed. This treatment did not however amount to enucleation. Enucleations were rarely performed at that time in view of the extreme suffering caused by the operation. There are two reasons for this. First, the surgical anatomy had only been described in 1841 both by O'Farrell in Dublin and by Bonnet in France. An idea of how primitive and horrible an operation excision of the eyeball had been is obtained from an account of John Hulke during his training at Moorfields.

The first excision of the eyeball that I saw was to me, a novice, so horrible and distressing a scene that the impression it made still lingers in my recollection. No anaesthesia. The surgeon first passed through the eyeball a stout needle armed with stout silk, and knotting the ends,

### News, Notes and Queries

formed a loop. Next, with this he dragged forwards the eyeball, and then scooped it out of its socket with a double-edged scalpel curved on the flat of the blade. This done an assistant, who stood ready with a large brass clyster-syringe, checked the profuse bleeding by squirting into the orbit iced water. How different this from enucleation as now done—methodical circular division of the conjunctiva, severance of the muscles at their insertions into the globe, careful section of the optic nerve with scissors.<sup>4</sup>

Secondly the introduction of general anaesthesia during the 1840s made this operation bearable. In 1851, Augustin Pritchard of the Bristol Royal Infirmary reported the successful removal of a blind, painful eye. 'I should scarcely have proposed so severe an operation', he wrote, 'if it had not been possible to remove all suffering by means of chloroform'.<sup>5</sup> He then speculated that an eye might be removed when its sight had been permanently lost and it endangered the sight of the sound eye. Yet, through his natural reluctance to remove an eye that had any hope of vision, Pritchard's speculation fell short of asking the crucial question which was: how far will enucleation of the affected eye prevent or arrest the disease of the second eye?

This question was finally and exactly formulated by George Critchett, Surgeon to Moorfields Eye Hospital, in an address to the Ophthalmological Congress at Heidelberg in 1863.<sup>6</sup> Critchett had earlier adopted a neat and anatomical method of enucleation and he, together with Bowman, was an early advocate of inhalation anaesthesia in ophthalmic surgery. In his address he suggested that it was safer to enucleate the injured eye when it was irritable and had lost its vision than to wait for the overt disease to develop in the second eye. In the discussion that followed von Graefe, while supporting this form of treatment once sympathetic ophthalmitis was established, suggested that prophylaxis should be achieved by removing the intra-ocular foreign body or, under certain circumstances, by deliberately introducing infection into the injured eye on the grounds that panophthalmitis never gives rise to sympathetic ophthalmitis. He proposed that this might be achieved by passing a thread through the injured eye. Three years later, however, von Graefe stated that enucleation of the injured eye did not affect the outcome of sympathetic ophthalmitis once the disease was established and, in spite of his initial reluctance, admitted that enucleation of the injured eye was good prophylactic treatment.<sup>7</sup> Von Graefe, who so clearly abstracted the principles of Wardrop's and Barton's work, thus added the weight of his authority to Critchett's dreadful logic. Prophylactic enucleation became the preferred treatment of sympathetic ophthalmitis.

### REFERENCES

1. WARDROP, J., *Essays on the Morbid Anatomy of the Human Eye*, London, Constable, 1818, vol. 2, p. 139.
2. MACKENZIE, W., *A Practical Treatise on the Diseases of the Eye*, 4th ed., London, Longman, 1854, Section 28, pp. 611–21.
3. CROMPTON, S., 'On injuries of the eye by percussion caps', *Lond. med. Gaz.*, 1837, 21, 175–77.
4. HULKE, J. W., President's Address. *Trans. Ophthal. Soc., U.K.*, 1887, 7, 19–34.
5. PRITCHARD, A., 'Extirpation of the globe of the eye', *Prov. med. surg. J.*, 1851, 15, 66–67.
6. CRITCHETT, G., 'Über Sympathische Ophthalmie', *Ber. Ophthal. Ges.*, 1863, 1, 440–50.
7. VON GRAEFE, A., 'Zur Lehre der Sympathische Ophthalmie', *V. Graefe's Arch. Ophthal.*, 1866, 12(ii), 149–74.

R. K. BLACH