

RICHARD MORTON (1637—1698)*

by

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RICHARD MORTON, the first physician since Galen to envisage a concept of the unity of tuberculosis and the first physician ever to state that tubercles are always present in its pulmonary form, was born in the county of Suffolk and baptised on 30 July 1637 in the parish of Ribbesford, Worcestershire, where his father, Robert Morton, was minister of Bewdley Chapel from 1635 to 1646. Richard Morton matriculated from Magdalen Hall, Oxford, but moved to New College when Magdalen Hall was absorbed by Magdalen College. He graduated Bachelor of Arts on 30 January 1656, and Master of Arts on 8 July 1659. During the interval he was Chaplain to New College and must have had the opportunity of meeting Sydenham, who held his Fellowship of All Souls until some time around 1661. Shortly afterwards he became Chaplain to the family of Philip Foley of Prestwood, and vicar of the parish of Kinver in Worcestershire. Philip Foley was his cousin, the fourth son of Thomas Foley, ironmaster at Stourbridge, and at various times between 1673 and 1701 Member of Parliament for Bewdley, Stafford and Droitwich. The founder of the family, which Munk describes as 'old and highly respectable', was Richard Foley, a seller of nails, and later a forgemaster, who had settled in Stourbridge in 1627, when he bought the manor of Bedcote from John Sparry. According to Scrivenor's *History of the Iron Trade* (1841) he had built his splitting mills on drawings of the ironfoundries in Sweden, to which he had gained entrance on the pretence that he was entertaining the workers on his fiddle. The Foley family had such influence in Whig Parliamentary circles during the reign of William and Mary that Sir Edward Harley welcomed the engagement of his son Robert, later first Earl of Oxford, to Philip's niece, Elizabeth.

The parish registers of Kinver of between 1659 and 1662 show a distinct handwriting which is certainly Morton's. We know he had left the parish before 1662, evicted as a non-conformist unable to give his 'unfeigned consent and assent' to everything in Laud's Prayer Book, for in the Visitation Book of that month (B/V/1/67) his name is crossed out and 'vacat' is written against the living. In the parish he left a group of dissenters; in the Visitation Book of May, 1663 (B/V/1/71), we read that the churchwarden, Richard Bird, was presented 'for not presenting the names of those as sitt with their hatts on in tyme of divine service and sermon, and such as keepe conventicles in Vicaridge House, which is out of reparaire, but no minister'. Morton did not forget his parish; in his will he left £50 to its industrious poor.

On 20 December 1670, he was created doctor of medicine at Oxford on the nomination of William, Prince of Orange, and according to Munk settled in practice in Grey-Friars Court, Newgate Street, in the City of London. He was admitted a candidate of the College of Physicians on 20 March 1676, and elected a Fellow on

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23 December 1678, two years before he was incorporated in his doctorate at Cambridge. His name was one of four omitted from the list that accompanied the renewal of the College Charter by James II in 1686. Sir George Clark writes that this was no doubt because James considered him politically unreliable as he had the patronage of William. If this was the sole reason, it is difficult to understand why the name of Edward Hulse had been retained, for he had been ejected from Emmanuel College, Cambridge, for non-conformity, had his Leyden degree incorporated at Oxford on William's nomination on the same day as Morton received his M.D., and had since then been William's personal physician. It looks as if James considered Morton a man of more standing and influence in the College.

He was not summoned to the quarterly Comitia held during the interregnum, and was not present at the first that followed the accession of William and Mary, but at a General College held a week later the President, Walter Charleton, read a letter signed by the four excluded fellows and three others. This letter stated that they had taken legal advice which showed that the Charter of Charles II was the only legal one, with the result that his name was restored in 1689. He was a Censor in 1690, 1691 and 1697, and the M.S. 274 (Call Number C.047), titled 'Minute Book for the use of the President, Treasurer and several Committees of the Same' (October 1689) shows he was present on October 1696 when 'a scheme of a charitable design' was presented by the 'Committee of Medicines' on the setting up of the College Dispensary in Warwick Lane. On his accession William appointed him a Physician in Ordinary.

The Corporation of London Records (Assessment No. 9, 37) show that he was a parishioner of Christchurch in 1695, living with his wife, his son, Richard, and his daughters Sarah, Mercy (or Mercia) and Honor; that he died, not as Munk says on 30 August, but on 7 September 1698, and that he was buried in the same grave as his wife and his daughter Honor, in the nave of Christchurch. This, the largest of Wren's City churches, was destroyed during the late war and is now but an empty shell lying behind the General Post Office. Particulars of the City tombs written up between 1910 and 1918 state that the floor slab over the grave had a shield that was by then almost obliterated. Neither consultation of records at the College of Arms, nor exploration of descriptions of various coats of arms borne by members of the Morton family and recorded in Burke's *General Armory*, has led to the identification of his personal shield.

His portrait, painted by Orchard, a not very distinguished artist, was engraved by Elder, a Scotsman who flourished in London between 1680 and 1710, specializing in engravings of writing, book frontispieces and portraits, among the latter those of Ben Jonson and Archbishop Sancroft.

From his will we know that Morton held property at Newdigate and Leigh in Surrey, and held a moiety of the manor or park of Ewood (*Victoria County History of Surrey*, vol. 3, p. 312; Manning and Bray's *History of Surrey*, vol. 2, pp. 174–77). We do not know when he acquired this property, for the few deeds of between 1606 and 1657 held by the Surrey Record Office do not mention his name, nor do the indexes to the Dorking Manor Rolls, nor the Sherwood Court Roll for the period 1654 to 1772. As both the manor of Ewood and that of Newdigate passed to the Duke of Norfolk, information was sought from the deeds held at Arundel Castle.

Unfortunately these have not been indexed, but there is a map of an estate of the 'late — Morton at Ewood', dated 1769; this is presumably a grandson of Morton's—the Richard Morton of Ewood to whom Manning and Bray say in their *History of Surrey* that a monument was erected after his death at the age of sixty-seven.

Further, Morton's son Richard is described in Venn's *Alumni Cantabrigiensis* as of Inwood—clearly a mis-spelling of Ewood. He was to be created a doctor of medicine in 1695, elected a Fellow of the College of Physicians in 1707, and become in 1716 a physician to Greenwich Hospital, in which he died in 1730.

All efforts to trace Morton's movements between 1662 and 1670 have failed. We do not know how he supported himself, how and where he trained in medicine, or how he obtained the patronage of William. He could not, as a nonconformist, enter Oxford or Cambridge, where Anglican worship was then compulsory, and there is no record that he enrolled as a student at Leyden. He could, of course, like many of his predecessors and contemporaries who had been students of divinity or the humanities, have read the works of the ancients, the many works in English on theory that had begun with Sir Thomas Elyot's *Castel of Helthe* (1536), the *Pharmacopeia Londinensis*, and the Old English herbals. Perhaps he was one of the many divines who, according to the poet George Herbert, then read medicine purely for the good of themselves and of their flock, and so had commenced his studies while vicar of Kinver. No matter when he decided to study, a spur to do so must have been his awareness of the prestige he would command from the belief, which the common man had held since the days of Church medicine, that as an ordained divine he had God-given powers of diagnosis and of the conferment of special virtues on herbal remedies.

All attempts to find out where he was married have failed. We know the marriage must have taken place in or before 1668 as his son was seventeen when he matriculated from Exeter College, Oxford, in 1686. We know, too, it must have been performed in a parish church, as otherwise it would have been illegal; the civil system introduced during the Commonwealth had ceased at the Restoration, and ceremonies in a non-conformist chapel were not valid until after the passing of the Act of Toleration. It is not recorded in the parish registers of Christchurch and does not appear in Boyd's 'Marriage Index'. Further, there is no record of his having made an allegation of intent to marry to any surrogate of the Bishop of London, to the Archbishop of Canterbury, or to the latter's London Faculty Office, which means it must have taken place outside London. The parish registers of Newdigate do not help; the name Morton does not appear in the lists of births, marriages and deaths for the years between 1662 and 1672 inclusive, which are kept in the Guildford Museum and Muniment Room.

It follows that all we can be certain of is that he must have been qualified to practise and have met William some time before December 1670, and that this must have been in Holland, as the Prince was then in England on his first visit, made in the hope of collecting a debt owed him by Charles II. He would no doubt be welcome at the Hague; William would have some memory of his mother's unjustified prejudice against the Dutch profession, and was employing the non-conformist Edward Hulse as his personal physician.

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Morton's three published works are *Phthisiologia, seu exercitationes de Phthisi, tribus libris comprehensae*, of 1689; *Pyretologia seu exercitationes de morbis universalis acutis*, of 1692; and *Pyretologia, Pars Altera, sive exercitatio de Febris* of 1693. The last two are not very original but are interesting in their description of the current fevers including his own illness, and were mentioned in the eighteenth century by writers such as Richard Mead and Theophilus Lobb. All three works with others by Walter Harris, William Cole, Martin Lister and Thomas Sydenham, were published as *Opera Magna* in Geneva in 1696 and 1727; in Amsterdam in 1696 and 1699; in Leyden in 1697 and 1757; in Lyons in 1697, 1739 and 1754, and in Venice in 1733 and 1737.

Morton may have written another work. The College Annals state that an unnamed book by him did not receive the College imprimatur in 1689 when this was a necessity for all publications. This may, of course, have been the *Phthisiologia* since it does give opinions not popular with Galenists.

Further, among the Rawlinson MSS in the Bodleian Library is one that credits him with a work on a method of preparing peruvian bark, and also a printed prospectus, dated February 1680, of a book not then published that is apparently an earlier draft of his first two works.

The *Phthisiologia*, dedicated to William III, established his reputation at home and abroad for over a century. An English translation appeared in London in 1720, and it was published in Frankfurt in 1690, in Ulm in 1714, and in Helstadt in 1780. It is interesting to note that during the reign of Queen Anne it was one of the textbooks advised for reading by the apprentices of the Society of Apothecaries by private tutors in anatomy and pathology.

For its choice of subject there are three probable reasons: that it became his main life interest, as he considered William to be a sufferer from tuberculosis; that he knew it had been closely studied by Sylvius de le Boë, professor of medicine at Leyden from 1658 to 1672, and that he was aware of its neglect by his London colleagues. The Bills of Mortality for the City and Liberties for 1700 show that of the 19,433 deaths from all causes other than suicide, 2,819 died of the disease (some 18.5 per cent).

As an ardent admirer of Sydenham, Morton was interested in the history of every patient and would have learnt from Govert Bidloo, William's Dutch physician, or from Edward Hulse, that the Prince, as a frail child of five years had suffered a severe attack of measles which left him with a life-long cough, often in painful bouts, that was then considered to be due to asthma, even when without the breathlessness which accompanied it in his case. From the age of eighteen he had frequent spells of extreme weariness and melancholy, from which he recovered on Sydenham's treatment for tuberculosis: horseback riding. Just before his visit to England in 1670 he had a sore throat with difficulty in swallowing, and between then and 1700 twice coughed up blood. By the time of his accession he was so emaciated that his stooping figure and his burning eyes in a haggard face were commented on by ambassadors to England. All these signs and symptoms are listed by Morton as 'causes of tuberculosis'. At the post-mortem in 1702 one lung was found to be 'inflamed to the point of mortification . . . the right side of the lungs showed adherence to the pleura and the left much more.' A mere molehill had brought him to bed for the last time; it is

evident that chronic fibroid phthisis had dogged him throughout his life.

Political historians continue to give the cause of death as asthma and chronic anaemia. There is no record that Morton saw him. His regular physicians were Sir Richard Blackmore, Sir Thomas Millington, Drs. Hutton, Wellwood and Brown, and the Dutchman, Govert Bidloo, who was to write a 'Relation' of the last illness denigrating all the others. Only Dietrich von Liebergen, the most eminent physician at the Hague, had suspected tuberculosis when at a consultation he had found a weakness of the bronchi and the diaphragm.

Morton makes no reference to the researches on tuberculosis made by Sylvius de le Boë, whose iatrochemical theory of physiology was to be strongly combated by his successor, Archibald Pitcairn, the originator of the iatromechanical principle. The researches of Sylvius on pulmonary tuberculosis had been published in the *Opera Medica* of 1679, ten years before the publication of Morton's *Phthisiologia*. Their influence is abundantly clear. Sylvius wrote: 'I found more than once larger and smaller tubercles in the lungs, which on section were found to contain pus. From these tubercles I hold that not infrequently phthisis has its origin. Only the wasting originated by an ulcer in the lung is to be called phthisis'. Morton was to develop this statement, which is a description of the pathogenesis of tuberculous cavitation that was not to be improved upon before the work of Laënnec.

Yet Sylvius remained a true Galenist in his belief that pus formed in the lungs had its origin in blood deposited by haemorrhage. On the other hand, when he comes to consider the prevalent theory of hereditary disposition he makes a complete break with tradition, for he suspects it is to be explained by juices in the blood that change with age, and follows with an entirely new assertion that 'the air expelled by consumptives, if drawn in by the nose and mouth by anyone, especially relatives, and particularly those of them who are of tender years, will produce phthisis.'

Because Morton agrees with him in accepting Galen's postulation of invisible glands throughout the lungs as the prime origin of tuberculosis he is severely criticized by Professor Bulloch in the 1911 Dobell Lecture to the Royal College of Physicians, saying that he thereby delayed research into the true cause for over a century. The wording in the *Phthisiologia* is: 'The glands of the lungs which in natural conditions are imperceptible are immensely increased and stimulated into aposthemes (that is, ulcers), when they become abnormal; . . . an apostheme is the whole immediate cause of consumption.' All that this means is that Morton, as an honest researcher, is paying proper respect to Galen as his immediate predecessor, and so mistakes tubercles for glandular degenerations.

The only excuse for Bulloch's criticism is a lack of appreciation of the importance of classical traditional medicine to seventeenth-century physicians, and of the consequent severe handicap to Morton. In a century that flouted authority in society, politics and religion and scorned corporations with a tradition, the orthodox quite naturally struggled for stability in medicine and therefore for statements on it that gave rigid definitions. Their discipline, which combined all then known of anatomy, physiology, pathology, and ethics, provided the only clearly-marked course through the uncharted seas of medicine. As it rested primarily on Galen's anatomy they were quite willing to accept empirical advances in the allied sciences of botany and physics

but determined to oppose those in human anatomy with the same apathy, to the point of antipathy, that characterizes the writings of the previous century. Then, John Vicary, John Bannister and John Caius, the life-long denigrator of Vesalius, ignored the detailed study in the *Isagoge Breves* of Berengario da Carpi, the work of the unprejudiced Florentine artists which reached its zenith in the drawings of Leonardo da Vinci that showed the pleural cavities, the intercostal muscles and the trachea with its bifurcations, and made no mention of the commentaries of Benevieni. Now, similarly, little heed was paid to Bacon's repetition of Galen's statement that symptoms can and must be explained by alterations in the body structure. Few writers hailed Harvey's great forward step in physiological anatomy. Harvey himself was well aware of this; when the College President, George Ent, visited him in his seventy-first year he spoke of the general prejudice against it. Even as late as 1665 Thomas Whiston does not mention him. The first signs of change came only when Cromwell appointed to Oxford the scientists of Gresham College that were the forerunners of the Royal Society. The College Annals relate how successive Presidents deplored the poor attendance at the Lumleian and Goulstonian lectures, how these were reduced from six to three in 1678, none was given between 1683 and 1687, nor between 1695 and 1703.

True, a few Fellows like Francis Glisson, Thomas Willis, Thomas Wharton and Clopton Havers made contributions, but it is all too evident that Sydenham summed up the general opinion when he wrote in the *Anatomica*: 'that anatomy is likely to afford any great improvement to the practice of physic I have reason to doubt.'

About the time Morton was writing, the existence of the lymphatics was generally known, as their discovery announced in the *De Lactibus sive lactis venis* of Gaspare Aselli in 1627 had been followed by the mid-century researches of Fallopius, Vesling, Joyliffe and Bartholin, and the excellent series of injection demonstrations by Anton Nuck at Leyden. Their complete differentiation from the smaller veins was not made until Leeuwenhoek discovered the minute circulation in 1686, and Frank Nicholls laid the foundations of histology in his work published in 1732. Indeed, no one before the researchers of the Hunterian School of Anatomy had more than a vague idea of their function. Further, experimental work on the transfer of the disease dates only from Villemin's work eighty years after Morton had deduced it from his experience in practice, and the so-called 'Ghon's focus' was not described by Tanto until 1876, six years before Koch discovered the bacillus.

Moreover, Morton had a further serious handicap in that only two English physicians before him had paid significant attention to Harvey's advice that 'the autopsy of one phthisic will advance medical knowledge more than the dissection of ten normal cadavers'. In his *Theatri Tabidorum Vestibulum* of 1654 Christopher Bennet had drawn some conclusions but they were more theoretical than practical. Thomas Willis in his *Practice of Physick* of 1684 is more interesting; he writes 'I have opened the dead bodies of many that have died of the disease in whom the lungs were free from any ulcers, yet they were set about with little swellings or stones or sandy matter throughout the whole.' While he disagrees with Morton he may be here giving an independent discovery of the chronic miliary and fibroid forms of phthisis, although Bonet had described in his *Sepulchretum* of 1679 a lung where

'totum parenchyma minimis tuberculis oppelatum est'. But he remains in causation a firm Galenist: 'phthisis is a withering of the whole body, one cause of which is an ill-formation of the lungs'. So does Sydenham; to him 'the noxious influences which lead to phthisis are to be found in the circulating blood, which discharges them upon the lungs.'

Bulloch makes no mention of Richard Mead's failure to recognize Morton's advances. Seventy years after Morton, Mead writes in his *Precepts and Cautions* of 1751 that 'the lungs are often' [not always] 'beset with tubercles in phthisis'; the cause of the disease is not contact infection but the purulent matter of ulcers mixing with the blood.

Starting perforce with its accepted Greek connotation, Morton considers phthisis under three headings. Under 'Wasting in General' he describes every cause of emaciation without regard to its anatomical origin, and, like Galen, confuses tuberculosis with syphilis. Under 'Wasting from a consumption of the lungs' he lists eleven exciting causes, seventeen diagnostic findings and two grades of pathognomonic findings in both incipient and advanced disease. Under the third, 'Symptomatic consumption of the lungs due to some preceding disease', he considers various illnesses that in his opinion lead to phthisis.

There emerges from the work his search for a concept of the unity of tuberculosis through a masterly symptomatology. Only Galen before him had envisaged such a concept, and he had failed because he did not understand the relationship of the tubercle to lung infiltration. No one before Laënnec got nearer to the true concept when he wrote that the tuberculous process is a definite pathological change, whatever its site, and that it occurs in the two forms of tubercles and nodules, and diffuse infiltration, both originating in a miliary nodule. In 1849 Liebert tried to find his 'tubercle corpuscle' while Virchow was still maintaining that the primary source lay in the tubercle. Morton failed for two reasons: his respect for Galen, and his anxiety to record all the bedside observations of a practice that had extended over some twenty-five years, and to correlate them with rational descriptions of the abnormalities found by dissection. Although the result reads like a frustrated attempt to link together several quite independent entities, yet it is a symptomatology that was not bettered until Edouard Rist, with the advantage of a long experience, founded on every necessary premise for ultimate diagnosis, published *Les Symptomes de la Tuberculose pulmonaire* in 1943.

Inevitably, Morton gets into difficulties when dissection discloses an abnormality in conflict with his preconceived hypothesis. Thus he is puzzled about how to classify the case of a child with a large collection of fluid in the abdomen but with no tubercles in the lung, for dropsy is one of his predisposing causes of phthisis; so he makes the grave mistake of postulating the presence of invisible glands in the mesentery similar to those imagined by Galen to be present throughout the lungs. Similarly in mixing causes and effects he reaches wrong conclusions: for example, we now know that 'wasting disease without cough, fever or shortness of breath' can be due to phthisis, and that 'passions of the mind' are not causes despite the evidence that they often precede the diagnosis of the onset or the re-exacerbation of the disease. 'A troublesome and chronic heat', which he rightly notes can end in profuse sweats, is an effect,

not a cause.

When, however, we read his comments on such mistakes we find him giving advice that was all too often unknown or ignored, with disastrous consequences, into the third decade of this century. Thus he writes: 'Blood-spitting should receive immediate treatment'. The consumption he believes to follow pleurisy 'is sometimes due to the ignorance or neglect of the attending physician . . .'. His definition of a phthisical cough as 'dry, without any expectoration, not great, nor its fits long' is its first and still its clear differentiation from a catarrhal one. His warning to 'avoid a new cold' is still sound even though his reason for it is the Galenic one that it will 'fill the body with a load of humours', and his cure for it in 'Fresh air that will bring rest to the lungs' remained the basis of every treatment before the introduction of the antibiotics.

His remarks on the hereditary theory are based on careful thought about his personal experience. He relates how 'a Mr. Hunt lived almost from his youth in a consumptive state, and from the age of sixty began to go downhill. His three sons lived till about thirty, about which time they were all, one after another, seized by the right of inheritance with a consumption'. His wife also contracted the disease but recovered. He concludes with the following most remarkable statements:

This distemper, like a contagious fever, does infect those that lie with them as have a certain taint . . . I cannot sufficiently admire that anyone, at least after he comes to the Flower of Youth, can die without a touch of consumption . . . A study of phthisis shows that the lungs possess a peculiar constitution which changes with age, although so far it is not possible to describe this accurately or to explain its nature. But this constitution must imply a special susceptibility to the influence of the humours at any particular period of life. In proportion as individual humours become more or less acrid at different ages, a varying tendency to disease is manifested. The chief explanation of phthisis in attacking persons in good health without obvious cause is to be looked for in the manifest changes in the humours of the body.

In this last statement, Morton, with a prophetic genius, gives the kernel of the present belief that the two age-groups for the onset of activity of the primary focus and of the re-exacerbation of a quiescent lesion coincide with those for the waxing and waning of the internal secretions.

When we add to these momentous observations and their rational explanations the facts that he was the first physician to state categorically that tubercles are always present in phthisis, and the first to describe the characteristic enlargement of the thoracic glands, in particular the tracheo-bronchial and broncho-pulmonary groups that were later to be shown to be of great significance in the pathogenesis of the disease, we must agree that Morton richly deserves his honoured place in the long list of those who have contributed to the solution of the problem of tuberculosis.

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