

# PARKINSON'S DISEASE

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EDITED BY

GERALD M. STERN

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GERALD M. STERN

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*This book is dedicated to James Purdon Martin and Frederick Albert Mettler and is intended, as they would have wished, to unite clinicians and neuroscientists in the study of Parkinson's disease.*



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## Preface

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### JAMES PARKINSON 1755–1824

'English born and bred, an English physician and scientist, forgotten by the English and by the world at large, such is the fate of James Parkinson'. Thus wrote his first biographer, L.G. Rowntree, when he addressed the Johns Hopkins Hospital Historical Society in 1911. While this may have been true of the nineteenth century many have corrected this deficiency in the twentieth century (Morris, 1955, 1958; McMenemy, 1955; Yahr, 1978; Gardner-Thorpe, 1987; Tyler, 1988). It would seem that all the retrievable information about James Parkinson has now received attention and that there is little new to say; furthermore, much of what has been written is well-known to clinical neurologists. Nevertheless as Parkinson's disease in its many aspects deservedly attracts the attention of an increasing number of neuroscientists who may not have had the opportunity of reading the several biographies, it is hoped that a brief account might be of some interest. Accordingly this preface attempts to recapitulate a little of the life and times of a remarkable surgeon-apothecary, consider the social background to Parkinson's celebrated essay which justly gave him enduring internationally recognized eponymous distinction – alas posthumously – and to record a few historical notes concerning the disease.

To Mary, wife of John Parkinson, surgeon, in the parish of Shoreditch, London, a son James was born on 11 April 1755 as recorded in St Leonard's Shoreditch parish register in the County of Middlesex. The family lived at No. 1, Hoxton Square in the Borough of Hoxton which now lies in East Central London. In the latter half of the eighteenth century Shoreditch was a gracious residential area and Hoxton Square was populated by religious, academic and scientific members of a rapidly changing society. McMenemy depicts Shoreditch with its fine gardens, meadows, streets, charity schools, almshouses as well as its inns, The Royal Oak and Fighting Cock Yard, taverns and gin shops. Erected in 1740 was a fine parish church where James was baptized,

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married and buried and it was in Hoxton that he must have spent the greater part of his childhood, education and professional activities. There is no known portrait and all that has survived is a brief impression recorded by a colleague: 'rather below the middle stature with an energetic intelligent expression of countenance, and of mild and courteous manners'.

Rowntree visited Hoxton Square and noted still standing an immense plane tree which had attained the age of a hundred and fifty years and which James Parkinson must have known in his youth. Hoxton had already changed. The homes of the wealthy were occupied by marble masons, mattress makers, cabinet manufacturers and leather embossers. Hoxton Square has continued to change and today workshops and factories have replaced the gracious homes. The original house, No. 1 Hoxton Square no longer stands, but the present building, which bears a commemorative blue plaque to James Parkinson, Physician and Geologist, now houses a centre for community music providing therapy for the under-privileged which surely would give pleasure and satisfaction to Dr Parkinson.

When Rowntree made his visit, the original house still stood and he was able to take the only known photograph. The building had fallen into neglect and squalor with broken window panes and there was a plaintive 'To Let' sign partially boarding up the front window from which Dr Parkinson may well have seen the patients who provided the case-histories for his essay. Rowntree described it as a plain, three-storey building.

Behind the main building was a smaller one with a central door opening into a little side street which was apparently Parkinson's office. In the rear there was a further small building which may have served as a laboratory, library or perhaps a museum. While the exterior was plain, Rowntree was impressed by the size of the rooms and the evidence of former prosperity; carved open fireplaces of elaborate design, large connecting arches between rooms and deep panelling of walls and ceilings. It was in such pleasant surroundings that James was brought up.

Little is known about his medical education except that he spent part of his medical training at the London Hospital, a short distance from his home. The minutes of the Hospital Committee record his admission as a student on 20 February 1776 when he was then twenty-one.

'The Committee admitted Mr James Parkinson to be a dressing pupil for six months ensuing in this Hospital, he being recommended by Mr Grindale, one of the surgeons of this Charity. The Chairman read to him the usual charge, whereunto he signed his assent'.

By 1785 James was already engaged in active practice, probably having taken over from his father who had died in the previous year, and it is well authenticated that he attended John Hunter's surgical lectures. In 1833 John, James' son, transcribed his father's notes into a book entitled *Hunterian Reminiscences* and in the preface states that his father wished to select those pathological doctrines which were exclusively Hunter's for publication.

While the details of James Parkinson's own medical education are scanty, his views on the subject reflecting his respect for tradition tempered with a shrewd, critical radicalism, clearly emerge from the book that he published in 1800 *The Hospital Pupil; or an Essay Intended to Facilitate the Study of Medicine and Surgery*. Written in reply to a friend seeking advice on the education of his son, Parkinson reflects on the temperament and personality appropriate for the profession of medicine, the medical curriculum, the prosecution of hospital studies 'according to the present system of medical education' and hints on entering into practice. Parkinson's nonconformist disposition and his distinctive literary style are well exemplified by the following:

'... I assert that of all the modes that could be devised for a medical and surgical education, this is the most absurd: it is the one which would most certainly exclude a young man from the chance of acquiring that knowledge, which the important situation he is about to fill, so imperiously demands... the first four or five years almost entirely appropriated to the compounding of medicines, the art of which with every habit of necessary exactness, might be just as well obtained in as many months'.

He insists on the need for Latin and Greek and shorthand, the latter he accomplished before embarking on his own medical studies, and sets out a practical course of instruction including summer reading, emphasizing a sound background in classical sciences and the importance of clinical responsibility. In a footnote, his directness, therapeutic scepticism and constructive criticism are encapsulated when proposing a formal regulatory body to assess drugs:

'In this age of science and beneficence, it is surprising that no public-spirited wealthy men have stepped forward to form an association to establish a fund for the purpose of ascertaining the actual properties of every nostrum, promoting the recompense of anyone who published any useful discoveries in medicine, and of furnishing with counsel, and the means of prosecution, those whose health had been injured and whose properties had been stolen by ignorant pretenders to

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medicine, whether under the character of advertising quacks, cancer curers or regulars'.

In that house in Hoxton Square James Parkinson practised as a skilful and compassionate physician involved with the physical, social and moral welfare of his patients and applied his lively mind to a wide variety of political as well as medical problems. While he was by disposition modest, unassuming and warm-hearted, he wrote with intense and deep concern. To appreciate the reasons for his strength of conviction one must recall the prevailing zeitgeist.

Parkinson lived during one of the most turbulent periods of international history. Born during the Seven Years War he saw the American struggle for independence and the formation of the United States, revolution in France and the anarchy of the guillotine, Napoleon's domination of Europe and the countering victories of Trafalgar and ultimately Waterloo. From these momentous events, England was physically but not socially isolated.

Georgian England evokes an image of elegance, gracious houses, beautiful silver, clarity of thought and a philosophy of common sense. London was the greatest city in the world. Between 1750 and 1770 the population of England doubled and by 1851 stood at eighteen million. The early industrial revolution was associated with great mechanical ingenuity and prosperity: 'few countries are equal perhaps none excel the English in the number and contrivance of their machines to abridge labour'. It was also an age of great violence, tyranny, nepotism and corruption, with an insane king, a profligate prince, an unrepresentative parliament, rotten boroughs and crime. The literary brilliance of Swift and Pope was appreciated by few; the majority were illiterate.

The greatest city in the world was also the worst smelling; sewers ran into open drains and rats foraged in daylight. There was great poverty, sweated labour was the rule and children went to work after their sixth birthday. There was an increasing army of ragged orphans and pauper children for which no adequate provision was made. Archaic statutes meant that the gallows remained the punishment for over two hundred possible offences, many of which were ludicrously trivial. Poaching a rabbit, cutting down a cherry tree, breaking the mound of a fishpond or cutting down an ornamental shrub, could receive the sentence of the scaffold. The most extreme punishment was hanging without the benefit of clergy; the more fortunate could be transported to Botany Bay to be separated from family and friends, to labour as convicts in chains under the constant threat of flogging.

There was only the solace of gin. After 1720 a spirit of white grain flavoured with crushed juniper berry became the national stupeficient,

drunk for a penny and dead drunk for twopence was the price of distraction from the prevailing social horrors. Residential solidarity stopped at the lower fringes of the middle classes, the majority composed Samuel Johnson's 'rabble' and Edmund Burke's 'swineish multitude'. After the horrors of the French revolution there was a general fear of Jacobinism, reform and revolution (Hughes, 1986).

James Parkinson by virtue of his upbringing and education could have detached himself from the turbulence and pursued his career and intellectual interests; he could have turned a blind eye to English society disintegrating under the stresses of industrialization, political upheavals, social disruption etc., but he was blessed with a social conscience and an inflexible integrity which urged him towards reform. Between 1793 and 1795 he published a series of pamphlets and commentaries some anonymously, others under the *nom de plume* of Old Hubert, criticizing, parodying, ridiculing and exposing social inequalities. These have been well reviewed by Rowntree, McMenemy and Yahr.

Parkinson's courage in attacking that which appeared wrong to him regardless of what and whom it involved and of his liberal sympathies and egalitarian reforms is well exemplified in a pamphlet he wrote anonymously in 1794 *Revolutions Without Bloodshed; or Reformation Preferable to Revolt*. He made a series of proposals that would increase the happiness and prosperity of the people. These included:

- (i) the claims of the people might be more duly attended to and their rights restored,
- (ii) taxes might be in proportion to the abilities of those on whom they are levied and not made to fall heavier on the poor than the rich . . . ,
- (iv) the poor laws and laws of settlement might be amended and a poor man not be liable to be sent to prison for moving out of his own parish to seek employment . . . ,
- (vi) workmen might no longer be punished with imprisonment for uniting to obtain an increase in wages whilst their masters are allowed to conspire against them with impunity . . . ,
- (viii) some proportion might be preserved between crimes and punishments and the starving purloiner of a few shillings not to suffer the same punishment as a murderer . . . ,
- (xiii) families that are comparatively starving might be exempted from contributing towards the enormous sums squandered in unmerited salaries and pensions . . . ,
- (xx) our sailors might not be dragged like felons into a service they dislike and made accomplices in slaughter . . . ,
- (xxii) differences of opinion in religious matters might not exclude men



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from enjoying the same benefits with their fellow citizens.

In the early 1790s, reforming English intellectuals, clergymen, lawyers, pamphleteers, but few doctors, made contact by establishing discussion groups known as 'Corresponding Societies'. They were essentially reforming constitutionalists who wanted to recall Britain's labourers and artisans to a sense of their ancient rights. Such societies were obliged to be secret and were under constant government surveillance. Parkinson was a member of the London Corresponding Society and in 1794 certain of its members were placed under arrest and charged with complicity in conspiring to shoot the King and intending to start a revolution, and others were thrown into prison and detained for months without trial. Parkinson was not apprehended, but courageously wrote a pamphlet entitled *A Vindication of the London Corresponding Society* pleading the innocence of those imprisoned, and also assisted members of the Society.

This caused him to be summoned to give evidence before the Privy Council, the highest authority in the land, where he was reprimanded by the Prime Minister, Pitt the Younger. The proceedings are set out in a letter that James Parkinson wrote to one of the prisoners and which appeared in 1795 in pamphlet form entitled *Assassination of the King!*. During detailed interrogation Parkinson conducted himself shrewdly and fearlessly, but with respect for the law and when imperatively asked by the clerk to take the oath upon the New Testament he declined:

*Parkinson:* My Lords, previous to taking an oath I expect to be informed on what points I am to be examined?

*Mr. Pitt* (in a softened tone): That, Mr. Parkinson, is impossible.

*Parkinson:* My reason for asking that request is because if I am to be examined respecting the business of Smith Le Maitre, Higgins and Upton I shall with the utmost willingness deliver my testimony on oath; but if my examination is to extend to any other matters, I must decline the oath.

After further interrogation Parkinson endeavoured to bring his characteristic commonsense to the proceedings.

*Parkinson:* I think I could suggest a better mode of examination to their Lordships.

*Mr. Pitt:* How! What – what is that?

*Parkinson:* That their Lordships will allow me to give you an uninterrupted detail of what I know subject to your subsequent examination. I am sure it will save both your Lordships and myself much time and trouble.

Mr Pitt clearly recognized Parkinson's qualities and graciously replied 'Very proper Sir; we shall be much obliged to you'. The full interrogation is detailed in Rowntree's biography and provides an indelible testimony to Parkinson's courage and intelligence. Perhaps as a consequence of this trial, the fear that he might not come off so lightly in the future, or perhaps the realization that despite his every effort the social factors which provoked the inequalities that distressed him so could not be improved by the efforts of any individual, he ceased to write pamphlets and directed his energies towards matters scientific and medical.

He had long been fascinated by geology and palaeontology and in England was recognized as a pioneer of these sciences. Based upon specimens he had collected from the strata in and around London, between 1804 and 1811 he published three volumes entitled *Organic Remains of a Former World* and in 1822 an *Outlines of Oryctology*. The introduction to the study of fossil organic remains became a celebrated textbook passing through three editions.

As a devout churchman he thought it necessary to warn his readers that this aspect of science might seem to bring them into conflict with the teachings of the Bible: 'Circumstances will be observed apparently contradictory to the Mosaic account, but which it is presumed served to establish it as the revealed history of creation'. He proposed that this disturbing incompatibility could be readily explained by assuming an indefinite period of time for each of the six days of creation:

We cannot quit these monuments of former worlds without alluding to the incontrovertible evidence they present of the exercise of Almighty Power and of the perpetual influence of a Divine Providence . . . The world is seen, in its formation and continuance, constantly under the providence of Almighty God without whose knowledge not one sparrow falls to the ground.

Thus did Parkinson reconcile the intellectual dilemmas that stemmed from his religious convictions and scientific curiosity.

He also found time to write for his patients. In a book entitled *Dangerous Sports* warning children about wanton, careless or mischievous behaviour 'from which alarming injuries so often proceed', Parkinson warns boys never to scare horses and tells them how to cope with the attack of a ferocious dog; they should never climb trees, go swimming in deep water, play with pistols or close a penknife against the thigh. Parkinson clearly had experience of such mishaps. In another publication intended for the laity entitled *Medical Admonitions* he gave a brief, but comprehensive account of the major recognized medical diseases.

In *The Villager's Friend* he writes as a village apothecary now in his old age and poorer than when he commenced practice. The reader is

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reminded how little patients consider the comfort of the doctor when he is called out at night in bad weather in response to urgent calls which prove to be unjustified. To diminish these abuses he draws attention to commonsense measures which should preserve good health. Contemporary physicians will endorse his advice on the therapeutic value of exercise, the dangers of working too strenuously and his warnings against excessive drinking: 'consider a little, my friends, how little you gain by earning 6/- instead of 4/- when the publican gets over half your earnings and the physic runs away with the rest'.

His contributions to the medical sciences were numerous and varied and reflect his curiosity and ability to write in an attractive manner. His bibliography is appended, but simply glancing at the list of titles: *A Case of Diseased Appendix Vermiformis*, *Cases of Hydrophobia*, *Hints for the Improvement of Trusses*, *Medical Admonitions, with observations on the excessive indulgence of children*, *Observations on the Nature and Cure of Gout*, *Some accounts of the effects of lightning*, *On the treatment of Infections of typhoid fever*, *A case of trismus successfully treated*, gives some indication of his diverse clinical interests. These publications appeared between the years 1799 and 1824 and it was during this fertile period that he published his now celebrated *Essay on the Shaking Palsy*.

Based upon six patients, Parkinson clearly and precisely drew to medical attention the distinctive features of the illness. Diffident and modest he apologizes for the 'precipitate publication of mere conjectural suggestions' and felt it necessary to remark 'that some conciliatory explanation should be offered for the present publication in which it is acknowledged that mere conjecture takes the place of experiment'. While it is true that Parkinson did not mention facial immobility or rigidity and that he failed to recognize dementia 'the senses and intellects being uninjured', it will be recalled that three of his six patients were encountered casually in the street and the opportunities for detailed examination were somewhat limited.

The essay of only sixty-six pages has been read by neurologists with devoted attention, wondering at its originality, clarity and prescience. Well known is the observation of the effect of a stroke upon tremor: 'During the time of their having remained in this state, neither the arm nor the leg of paralytic side was in the least affected with the tremulous agitation; but as their paralysed state was removed, the shaking returned'. Clairvoyant anticipation of stereotaxic surgery? 'Until we are better informed of the nature of this disease, employment of internal medicines is scarcely warrantable; unless an analogy should point out some remedy a trial of which rational hope might authorise'. Was the 'analogy' drug-induced parkinsonism leading to levodopa therapy or was Parkinson anticipating MPTP intoxication?

When describing the several stages of the illness: 'It seldom happens that the agitation extends beyond the arms within the first two years; which period, therefore if we were disposed to divide the disease into stages might be said to comprise the first stage', he evidently anticipated the staging and assessment systems presently employed by clinicians. Parkinson anticipated current aetiological controversies concerning environmental factors and ageing when he described one of his patients:

'He has led a life of temperance, and has never been exposed to any particular situation or circumstance which he can conceive likely to have occasioned, or disposed to this complaint; which he rather seems to regard as incidental upon his advanced age, than as an object of medical attention'.

It is comforting to contemporary investigators that James Parkinson also had difficulty in persuading patients to participate in therapeutic trials: 'He was therefore recommended to make trial if any relief could, in that mode, be yielded him. The poor man however appeared to be by no means disposed to make the experiment'; another 'being fully assured of the incurable nature of his complaint, declined of making any attempt for relief'. James Parkinson even had a kind word for the readers of this book

'Through such researches the healing art is already much indebted for the enlargement of its powers of lessening the evils of suffering humanity. Little is the public aware of the obligations it owes to those who, led by professional ardour, and the dictates of duty, have devoted themselves to these pursuits, under circumstances most unpleasant and forbidding'.

During his lifetime the essay was not reprinted and received only modest recognition. However, a few years later, John Cooke (1756-1838) in a comprehensive treatise on nervous diseases wrote: 'Mr. Parkinson's . . . paralysis agitans or shaking palsy . . . appears to be highly deserving of our attention; I shall therefore give a short account of it, although nosologists have not classed it among the palsies'. It was Charcot (1884) who gave Parkinson authoritative recognition and today his priority in drawing attention to the distinctive features of the disease are undisputed.

Yet the question has often been posed, particularly by epidemiologists and those concerned with environmental toxins, whether the illness occurred in earlier times. It is difficult to be confident whether the constellation of motor deficits which we now call Parkinson's disease was identical in aetiology, clinical and epidemiological features to that observed in the nineteenth century; it is even more taxing to look back