

SYDENHAM'S IMPACT ON ENGLISH MEDICINE*

by

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A PRIME necessity for an assessment of Sydenham's impact on English medicine is a sympathetic understanding of the social conditions and of the troubled state of medicine in his day. In a countryside with atrocious roads and a consequent lack of intercommunication, local prejudices and rebellion against central authority that undermined all attempts at national unity before the Restoration, back-breaking labour was the motive power of industry. Bone-aching and the winter-itch were the common lot of high and low; the townsmen, particularly in the ports, feared that fresh plague visitations would add to the miseries of tuberculosis, smallpox and the 'bloody-flux'. 'Man', wrote Robert Boyle in his *Medicinal Experiments*, could 'depend for continued health only on divine goodness.' The political and religious upheavals that culminated in the civil wars brought painful disruptions of family life, and the bewildering fragmentations of non-conformity, the cold, Calvinistic doctrine of Hell and damnation to a people who had already lost the warmth and mental peace of a universal faith. Yet Bunyan's Pilgrim could encourage Faintheart, survive the Slough of Despond and confront Giant Despair with the sturdy individualism that characterized the century.

The state of medicine was still more chaotic than it had been in the sixteenth century. The three incorporated bodies of the College of Physicians, Barber-Surgeons and Apothecaries practised on no common standards, their individual members more interested in berating their competitors and in publishing speculative hypotheses and nostrums for self-advertisement than in recording details of the application and results of their therapy. In addition there were graduate physicians outside the College authority who, with churchmen and humanists, shared its discipline of classical traditional medicine, and thoughtful empirics, whose experiments too often caused them to be classed with the swarms of dishonest quacks. The vast majority of practitioners were content with a blunderbuss herbal polypharmacy compounded from the official Pharmacopoeia of the College, which contained occasional medieval remedies, often dispensed with a carelessness that rendered them dangerous and even fatal. The lack of recognized physicians and surgeons led to a succession of works for those who could not find or afford them; books on kitchen physic on the lines of Gervase Markham's *The English Huswife* of 1615, most of them like Elizabeth Grey, Countess of Kent's *Choice Manual of Rare and Select Secrets of Physicke and Chirurgerie*, which ran to nineteen editions, and also to the continued popularity of the Old English Herbals.

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The century's numerous commentaries by the orthodox are dull and complacent in their reiteration of the Tudor belief in the efficacy of a moderate diet for the prevention of disease and the prolongation of life. James Hart's *Diet of the Diseased* of 1636 adds nothing to Andrew Boorde's *Dietary of Health* of 1543; indeed it is on exactly the same lines, although he claims it to be original. Humphrey Brooke's 1650 *Conservatory of Health* and Everard Maynwaring's 1670 *Preservation of Health* differ little from Thomas Coghlan's *Haven of Health*, which had its fourth edition in 1636, although we must credit Maynwaring with being far in advance of his contemporaries in his condemnation of violent purgings and indiscriminate blood-lettings. Not so Thomas Muffett; his *Health's Improvement*, published in 1655, is merely a compilation of the opinions of the ancients, which had been the main concern of the students of the fifteenth century. Some writers had the strangest of ideas; James Hart believed that roast pigeon was good food for plague victims only if, before cooking, its head had been removed, for otherwise it could cause blindness or even death; 'G.W.' held that a draught of mice-dung in a pint of the sweetened juice of plantane would cure blood spitting: examples of how statements made on insufficient evidence and without controls gained general credence.

All these commentators were essentially naturopaths, applying their individual renderings of the Hippocratic dictum: *vis mediatrix naturae*. It is wrong to say they ignored a known etiology of disease, showed a lack of logic in their firm belief in the doctrines of Galen and refused to apply in therapy the contemporary advances in the sciences allied to medicine. Some of the orthodox were members of the 'virtuosi' and several like George Ent, Francis Glisson and Jonathan Goddard were original Fellows of the Royal Society. Granted that the laymen Hooke and Boyle made the first researches on respiration, it was William Harvey who discovered the mechanics of the circulation and Richard Lower who confirmed them; Robert Wright whose interest in human and comparative anatomy opened the window on pathology; Thomas Willis who stated that the urine might contain sugar; and John Mayow who hinted at the coming relationship between physiology and biochemistry. It is foolish to think their researches could be applied immediately in practice; there was no Stephen Hales to turn Harvey's work to advantage, no Riva Rocci to construct a sphygmomanometer, no Sir John Floyer to make a pulse-watch, and it was still a far cry to James Watt's spirometer. Indeed, interest in all such measuring devices stems directly from Sydenham's stress on the value of meteorological observations in the study of fevers.

It is in the writings of laymen, however, that we find the first evidence of dissatisfaction with orthodox therapy; men like Sir Richard Carew, who in his *Booke* of 1640 follows Boorde in advancing the theory that cold is the sole cause of disease and warmth its cure; his favourite remedy is 'comfortable liquor, good ale or wine, heat by the fire as hot as I can drink it'. William Walwyn, the father-in-law of Humphrey Brooke, who describes himself as 'Health's student', is still more scathing in his *Touchstone for Physick* of 1667 and his *Physick for Families* of 1669; he prefers 'medicines each for a particular mark

or character of disease' in his thirty-two secret remedies, and is therefore some one hundred and forty years in advance of Hahnemann. Most Fellows of the College had complete faith in herbal remedies; Baldwin Hamey junior was content to prescribe syrup of rhubarb for the treatment of gout and broths made from his own garden-herbs to treat his peripneumonia. There were exceptions; Nehemiah Grew appeals in his *Anatomy of Plants*, published in 1682, for the more rational use of herbs, and Sir John Floyer in his *Touchstone of Medicines* (1687) makes an attempt to establish a materia medica founded on a correlation of their sensory characters with their results in the body, which was not entirely discarded until Jonathan Pereira disproved his arguments in 1836. But John Tanner in his *Hidden Treasure of the Art of Physick fully discovered*, published in 1672, has still so much faith in the College Pharmacopoeia that he advises those who cannot read Latin to consult Culpeper's translation. Two years later we find Thomas Willis writing in his *Pharmaceutice Rationalis* that 'physic is still governed rather by chance or fortune than by advice'.

Although the Rosicrucian Robert Fludd, a Censor of the College four times between 1618 and 1643, accepted every Paracelsian doctrine, and like Sir Theodore de Mayerne, physician in ordinary to the King and the writer of the dedication in the 1618 Pharmacopoeia, advocated chemical remedies, these came in for very rough handling until the mid-century. James Hart and Sir Thomas Browne dislike them as heartily as Lord Verulam; they group 'chymical physicians' with experimenting apothecaries and quacks as 'foolish empericks'. James Primerose gives them only grudging recognition in 1651. It is the layman Robert Boyle who in 1663 says in his *Usefulness of Experimental Philosophy* that 'patients would not rather be methodically killed than empirically cured'. Not till 1669 does 'Anonymous' in his 'Discourses' advise the College to study and prepare them, and we wait till 1689 to find Walter Harris put forward the first chemical notions of disease in his *De Acutis Morbis Infantum*.

Such is a summary of the condition of English medicine when Sydenham, with a mental courage equal to the physical he had shown in the Parliamentary Army, dared to introduce Hippocratic empiricism, to scorn accepted methods of teaching and reliance on individual hypotheses and to suggest changes in the humoral theory. True, there had been interest in direct observation ever since Gerard had written his excellent description of scurvy. John Caius, who had lodged with Vesalius at Padua, had introduced the study of practical anatomy and given the first public lecture on it at the Hall of the Barber-Surgeons; but no one before Sydenham had got down to the essentials for the clinical study of disease. We owe an inestimable debt to Dr. Thomas Coxe who persuaded him to devote himself to the study of medicine.

He was well aware that he would invite a 'harvest of abuse'. That great admirer of tradition and of Oxford University, Thomas Willis, was surely not expected to cheer the statement that 'physic is not to be learned by going to the Universities', especially as he knew that Sydenham had spent a mere eighteen months between Cambridge for his bachelorhood and Oxford for his doctorate. Few of his colleagues could have enjoyed the gibe that 'the usual pomp of

medicine exhibited over dying patients is like the garlands of the beast at the sacrifice'. But it is in such remarks that we get to the heart of his thinking. He did not believe that the ill were benefiting from a succession of irritants, counter-irritants, clysters, cauterisations, blood-lettings and purgings such as denied Charles II the rest he so badly needed on his death-bed. He considered they would be no worse under a régime of masterly inactivity, during which the physician would observe and record the natural course of disease, free from past and present speculations and the investigations of natural philosophy which he considered contributed nothing to contemporary therapy. His reading of developing symptoms was that they are the natural and welcome evidence of the body's healing activities. A drug like quinine was an aid to these activities; the fever produced was not antagonistic as Hahneman was to teach, and he would have condemned such a doctrine as false thinking.

He made no direct contribution to therapy, advocating only what he himself had found useful; laudanum for pain, iron for anaemia, Jesuit's bark and cooling fluids in fevers, and fresh air and exercise in the treatment of tuberculosis. He acknowledges the debt owed to chemists, but dislikes alchemists. 'With steel', he writes, 'as with other famous remedies, the officious sedulity of the chemists has not only failed in adding to its activities, but has succeeded in diminishing them', and then adds: 'to hesitate in our acknowledgements to chemistry would be ungrateful'. But 'the vegetable world' is still his favourite source of remedies, and when he supports the medieval belief we find in the 1527 translation of the writings of Jerome of Brunswick that 'provision has been made for the more serious diseases, and that near at hand in every country', we understand why to John Wesley he was one of the truly godly physicians.

He has nothing against the new interest in anatomy and pathology, but allots them the secondary value they then had in practice. In the unpublished fragment entitled 'Anatomica', which he wrote with John Locke, we read: 'It often directs the physician's hand in the right application of topical remedies; it may too in many cases satisfy a physician in the effects he finds produced by the method or medicines; but that anatomy is likely to afford any great improvement to the practice of physic I have reason to doubt.' In his comments on hysteria he says: 'All this is shown in dissections of such as die of the disease.' To him, however, neither practical anatomy, nor post-mortem examination, could be a substitute for the study of sickness in the living body.

In his opinion

the science of medicine is to be advanced by first a history of the disease, a description at once graphic and natural in a manner to escape the censure of the great Bacon; second by a Praxis or Methodus, regular and exact, enumerating the peculiar and constant phenomena apart from the accidental and adventitious ones; in so doing every philosophical hypothesis whatsoever should lie in abeyance, for experience is the best guide and teacher.

This principle had made Hippocrates 'divine'.

But Hippocrates had not fulfilled these criteria; his inference in *Airs, Waters, Places* that infertility results from a uniform climate is built on a correlation of unrelated data which he had no means of assessing, and his *Aphorisms* rest on

limited experience and on a lack of controls. Nor does Sydenham comply with them. In his criticism of Paracelsian teaching he writes: 'It is clearly impossible that a physician should discover the causes of disease that are not cognisable to the senses as this brings dependence on reason', but this is what he himself does, quite justifiably, when by deductive reasoning he gives a prognosis for a new patient based on the remembrance of the course of the disease in a former one where the signs and symptoms developed on a similar pattern.

He did not admire Galen; he saw how observation was buried under inference in the postulation of the invisible pores in the cardiac septum to support the theory of the three 'animal spirits'; nor did he accept his definitions of health and disease. In his belief: 'Humours may be retained in the body longer than is proper', so that 'a disease is nothing more than an effort of nature to restore health by the elimination of the morbid matter'. This is the case in acute diseases, whereas 'where the morbid matter either never attempts its proper coction at all or else attains it slowly' we have chronic diseases. His final opinion is that 'the cause of disease, generally speaking, is weakness of the blood', which 'is not able to convert to its own substance the matter taken in as elements from without'. We note he makes no mention of alchemical powers of the stomach.

These views, however, were not generally accepted even in the second half of the following century. Edward Strother's criticism of the 'Essays' of George Cheyne is argued on the same principles of the animal spirits which we find in William Salmon's *Compleat System of Physic*, published in 1686, and the humoral theory remains the basis of William Cullen's *Solidism* and therefore of the arguments in William Buchan's *Domestic Medicine* (1769), despite the clear demonstration of its fallacy in Morgagni's *Seats and Causes of Diseases* (1761).

In the *De Febris* Sydenham argues his theory of the 'epidemic constitution'. The work is dedicated to Robert Boyle, whose ideas on the components of the blood he joins to the teaching of Hippocrates on the influence of weather conditions and to the contemporary belief in the effects of miasmas. Of miasmas he had plenty of experience, for he had settled in King Street, close to the present St. James's Square and so hard by the marshy wastes of St. James's Park. He writes: 'Fevers are based upon some unknown constitution of the atmosphere'; this arises from a miasma due partly to 'the exhalations of the sick and of corpses of those dead of the disease', so that 'disease and contagion are propagated through the whole atmosphere', and 'destroy even those who have been removed from the affected area'. When these miasmata are inhaled they 'mix with out blood', and produce 'a dyscrasis of its fibres' in what 'nature calls a fever'. He cannot otherwise explain either the origin of the plague spots or the fact that the fever appears in one town but not in another close by. But then he dabbles in the rationalism of the Paracelsian hypothesis which he condemns; he wonders whether the atmospheric changes are not also 'in part due to some alterations induced by some peculiar conjunctions of the heavenly bodies'.

On the influence of weather conditions he writes: 'The particular seasons of the year which favour particular complaints are carefully to be observed'; such

Sydenhams Impact on English Medicine

knowledge 'is of equal value to the physician in determining their species and in effecting their explanation'.

Before his day there was no useful nosology; his remarks on it are therefore of particular importance. He says:

It is necessary that all diseases be reduced to definite and certain species; it happens at present that many diseases included in the genus are different in their natures; even where we find a specific distribution it has been adapted not to the nature of the complaint but to the views of the author.

He then follows Bacon in using the analogy of botany, pointing out that in studying plants 'if we describe a single member of a species this will apply to all members of that species'. This same type of similarity would apply to diseases, since by recognizing in them features that are essentially similar we find 'nature in the production of disease is uniform and consistent'. We note his restraint; he goes no further in the hierarchy of nosology than is warranted by his personal experience, and is well aware that the task he has outlined would take many lifetimes.

The greatest immediate effect of his work came from his powerful and concise clinical descriptions based on his bedside observations. Henceforth the discipline of orthodox medicine no longer rested on the official adoption of the 'popular medicine' of classical tradition, applied with a routine summation of the patient's diathesis, the state of his uncounted pulse, and the inspection of his drawn blood, his stools and his urine. The lay commentator survived, but after the great effort of the learned empiric John Wesley to return to reliance on naturopathy through herbal medicines and their accompaniments of superstition and magic, he became at best a pseudo-empirical quack. Not even Wesley's standing as a minister of religion with supposedly God-given powers of diagnosis, knowledge of the hidden mysteries of disease and ability to treat it without the new orthodox training, could compete with William Buchan's presentation of a popularized version of the new discipline. An attempt to return to naturopathy was indeed made by the medical botanist, Coffin, in the 1850s, and has been made again recently by critics of the specifics of the present scientific discipline, but in effect all that was left to the non-medical writer was the appeal to our native love of mystery and self-medication, fostered in the eighteenth century by fresh editions of the herbals and kitchen-physic books, and continuing today in articles on wonder-drugs and pep-pills, sedatives and slimming diets.

Yet this emphasis on the observation of bodily ailments had one bad effect; it continued and exaggerated the divorce between mind and body. In the following century George Cheyne did show an interest in neurosis and William Buchan recognized the influence of the 'chronic passions', especially in the recently resuscitated theory of the part played by the melancholy of bereavement, disappointment and frustration in the onset of clinical pulmonary tuberculosis. But this fleeting interest in the man with disease, as against the disease in the man, flagged until the present century brought new semi-orthodox concepts of discipline and treatment, such as spinal manipulation and chiropractic, auto-suggestion and hypnotherapy.

Sydenham's new doctrine was welcomed by many of his most brilliant contemporaries immediately after the publication of the *Methodus Curandi Febres* in 1666. Within a year began his friendship with John Locke, who in his 1669 note on smallpox already recognizes him as a 'great genius of physick'. It was Locke who with John Mapletoft was to encourage his master to write his *Medical Observations*, and who was to remain his great supporter for close on fifteen years after his death. Locke's lifelong interest in Sydenham's correlation of weather conditions with the incidence of fevers, shown in the publication of ten years' observations as an addition to Boyle's *A General History of the Air* (1692), was to prove of great significance. It led to the differentiation of the entities of disease hitherto hidden under the general term of 'putrid sore throat'; to John Huxham's description of diphtheria, Sir John Pringle's separation of malignant jail fever, Colin Chisholm's attempt to unravel the mysteries of contagion and Robert Jackson's pointers to the nineteenth-century ideas on epidemiology and immunity. Moreover it is to Locke's association with Sydenham that we owe his introduction of empiricism to English philosophy, for the *Essay Concerning Human Understanding* is but a step from his experience in the medical context to experience in general.

Two pupils of Sydenham, Hans Sloane and Charles Goodall, were to become Presidents of the College of Physicians. Their master never had the opportunity to become a hospital physician, but it is justifiable to claim that he influenced the introduction of the clinical teaching of medicine in the new voluntary hospitals. Sloane, who was to become a governor of most of them, was a friend of the Quaker John Bellers, whose *Essay on the Improvement of Physic*, published in 1714, advocated teaching hospitals at Oxford and Cambridge. Clinical instruction had been given first at Padua in the sixteenth century and then at Leyden from 1630. In 1664, however, Sylvius claimed to be teaching medicine 'by a method unknown in Leyden, or perhaps elsewhere, by taking his pupils to visit the sick in a publick hospital'. We do not know when Sydenham began taking pupils on his daily rounds, but what Sylvius did was, after all, but a version of this new form of apprenticeship.

To Goodall, Sydenham was his 'father' in medicine. Among other admirers and followers were Sir Thomas Millington, Sedleian Professor of Natural Philosophy, who had shared a room with him at All Souls; William Cole, a leading physician in Worcester and later in London, whose letter to Sydenham led to the Epistolary Dissertation on hysteria; Mapletoft of Gresham College to whom he addressed the Epistle Dedicatory which refers to their common friend Walter Needham; Robert Brady, Regius Professor of Medicine at Cambridge, to whom he addressed the first of his 'Epistolae Responsoriae'; Henry Paman, Harveian Orator in 1688, to whom he addressed the second; the Roman Catholic Richard Short, and the nonconformist Richard Morton, whose name was omitted from the list of the Fellows of the College in James II's charter of 1686. Dr. Johnson did him the signal honour of writing his life; these disciples ensured that in the next two hundred years many others, like Thomas Addison and Richard Bright, would deserve the title conferred on William Heberden: 'medicus vere Hippocraticus'.

Sydenham's Impact on English Medicine

In 1731 Francis Clifton suggested an important application of Sydenham's principles. In his *Tabular Observations Recommended as the Plainest Way of Practising and Improving Physic* he proposes that 'three or four persons of proper qualifications should be employed in the hospitals to set down the cases of the patients there from day to day, and publish the facts just as they are' for then 'diseases will be better known and better cured'. But he was too far in advance of his time and could scarcely influence his contemporaries, since there was no pathological and bacteriological basis for the proper conception of disease, and no statistical means by which to arrive at a sound evaluation of drugs and of the methods of therapy until the emergence of the scientific discipline in the third quarter of the following century.

Many true empiricists of the eighteenth century returned to wasteful theorizing in their sincere anxiety to find a definition of fever that would comply with Sydenham's criterion of common factors and common distinguishing features. William Cullen, in his dissatisfaction with the theory of Boerhaave, produced his 'system' of 'Solidism', built on insufficient experience and false logic. John Brown, following up Haller's ideas on irritability with his two classes of 'sthenic' and 'asthenic' diseases, merely returned to Roger Bacon's fourteenth-century search for a universal cure that required no understanding of the individual patient. Yet his ridiculous simplifications were to prove a salutary shock to the theorists, who at last realized that the foundations of medical education must be built on a sound marriage of empiricism and rationalism.

We have noted how in his suggestions on nosology Sydenham would go no further than his limited experience would allow. Not so Linnaeus, who did great damage by his 'Genera Morborum' (1763). An expert botanist but an inexperienced physician, he had been influenced by François Boissier de Sauvages, who had tried without success alphabetical, temporal and etiological classifications. Where he finally failed was in his inability to differentiate between the entities of disease and their symptoms and signs; in a misreading of Sydenham's teaching he could not discard the contemporary belief that all the physician could be sure about was what he could know by his senses, and so did not realize the necessity of periodic evaluation by rationalism. William Cullen did make some advances but erred in the opposite direction; he too built his classification on symptoms, but got lost in their speculative correlation with function. In 1794 Erasmus Darwin attempted an arrangement by causes in his *Zoonomia*, but was foiled by his inadequate knowledge of the science of medicine and by an overloaded nomenclature. Reasonable nosology like reasonable education was impossible before the coming of the scientific discipline.

Since Sydenham's day there have been many successive explanations for the mysteries of bodily functions and their aberrations, from the electrical, chemical, nutritional, bacteriological and immunological, to the cellular and psychosomatic. Most of them were a departure from the doctrines of Sydenham in that they left the clinician as a mere onlooker until the late philosophers General Smuts and Lord Samuel pleaded for a return to the thesis of the seventeenth-century writers on 'spiritual physic', with its emphasis on the necessity of the

R. R. Trial

knowledge of the patient in his 'wholeness'. This plea has brought a further step in the new hypothesis of 'geo-medicine', and when we read that this is based on a number of similarities found in the epidemic features of multiple sclerosis correlated with soil, latitude and genetics, we find ourselves back with Sydenham, and through Sydenham back to the dangerous logic in the *Airs, Waters, Places* of his 'divine' Hippocrates.

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