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John Locke and the Preface to Thomas Sydenham's Observationes Medicae

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\* Sadly, Professor G G Meynell did not live to see this article published. He died on 14 May 2005.

The great reputation enjoyed by Thomas Sydenham in his lifetime (1624–89) was founded on his treatments for fevers, notably smallpox, although he is now remembered as much for his views on how medicine should be studied. Both aspects were developed in his *Observationes medicae* (1676), a substantial volume which included the wider questions considered here and is far from being simply an account of epidemics. The *Observationes* is therefore concerned with both general and particular aspects of medicine, of which the first occupies the Preface; and it is these thirty-five pages of the Preface which appear by far the most significant today. Whereas the rest of the book is concerned with Sydenham's views on epidemics and fevers which have become outdated, the Preface is in effect a manifesto setting out important general principles for the practice of medicine.

The arguments of the *Observationes* have naturally been regarded as Sydenham's alone but the index John Locke made in his copy of the *Observationes* recently suggested that he too might have been involved in writing the Preface.<sup>4</sup> This now appears to be the case, judging from a fuller examination of the texts.

# Boyle's Part in the Collaboration of Locke and Sydenham

After reading of their very different upbringings, it would be hard, on the face of it, to think of two men less likely to be collaborators. One grew up in what is politely called "the school of life"; the other enjoyed a steady progression through what was probably the finest academic education that England had to offer. The difference shows in their writings. Sydenham's Latin was so poor that it was generally said that his books were all put into Latin for him.<sup>5</sup> He evidently had no knowledge of French. Moreover, even his English is often hard to follow: his clinical descriptions are brilliant but his arguments are frequently rambling and confused.<sup>6</sup> In contrast, Locke's books and letters show him to have been, not only a master of English, but also fluent in both Latin and French. How two such men came to meet and work together is probably explained by their acquaintance with Robert Boyle.

Thomas Sydenham was born in 1624 and died in 1689. His *Observationes medicae* was published in December 1676 and its 470 pages of text are largely descriptions of the epidemics Sydenham witnessed in London between 1661 (when he would already have been about thirty-seven years of age) and 1675. Our knowledge of his earlier life before 1661 is remarkably incomplete except that it is known to have been seriously interrupted by the military and political upheavals of those times. He was born into a family of the established West Country Puritan gentry<sup>7</sup> which lived in the depths of the countryside at Wynford Eagle

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outside Dorchester, but he was nevertheless directly involved in the fighting of the Civil War. His mother was murdered by Royalists in 1644 and two brothers were killed at other times; while Sydenham himself twice served in the Cromwellian Army, first in 1642 just after he had entered Oxford and again in 1651. He certainly did not have a conventional upbringing in which he passed uneventfully from home to school to university, and then into medical practice. His election to a Fellowship of All Souls College, Oxford, in 1648 signified, not academic distinction, but a quasi-political appointment, his "intrusion" by the Parliamentary Visitors.<sup>8</sup> What makes the *Observationes* so absorbing is not its theorizing or clinical detail, novel though much of this is, as the overwhelming impression it gives of being a personal account of Sydenham's own experiences. At one point he recalls a physician who, during the Civil War, successfully treated soldiers suffering from plague by bleeding: "He took an enormous quantity of blood, keeping on until they were unable to stand on their feet; they stood whilst they were bled: it was done in the open air. There were no vessels to catch or measure the blood; the soil served for basin". With such a background, it is not surprising that Sydenham believed that "the art of medicine was to be properly learned only from its practice and its exercise". Elsewhere he was quoted as saying in more robust language that "Physick is not to be learned by going to universities ... one had as good send a man to Oxford to learn shoemaking as practising physick", and on another occasion, "Anatomy—botany— Nonsense! Sir, I know an old woman in Covent Garden, who understands botany better; and as for anatomy, my butcher can dissect a joint full as well" (the

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last to Hans Sloane).<sup>10</sup>

Sydenham's closest collaborator, John Locke (1632–1704), was a man who, by contrast, had the most conventional of educations and became one of England's most distinguished philosophers. Like Sydenham, he came from a West Country Puritan family: his father was an attorney in a small town, Pensford in Somerset, near Bath. Thanks to the interest of a local MP, a friend of his father, in the autumn of 1647 he entered Westminster School, London, and then in 1652 went on to Christ Church College, Oxford, where he was first an undergraduate and later held a succession of lectureships. His academic career does not bring out two important aspects of his life. His notebooks show him to have been intensely interested in practical details of all kinds, ranging from the care of horses to the construction of laboratory furnaces. Furthermore, he developed a life-long interest in medicine and science, and had even seriously considered practising medicine, which he eventually abandoned due to poor health. His library contained many medical and scientific books, some inscribed by Boyle, and he not only took down Richard Lower's physiology lectures at Oxford and attended a practical course on chemical remedies given by Peter Stahl, but also worked in the laboratory, continuing even into the night. 12

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Locke's acquaintance with Sydenham is believed to date from 1666/7 after he left Oxford for London to act as personal physician to the future Lord Shaftesbury. He and Boyle had already met at Oxford in 1660, well before Locke knew Sydenham,<sup>13</sup> and Locke's notes show that at Boyle's suggestion he began making notes on the weather in 1666.<sup>14</sup> In London, Sydenham was a neighbour in Pall Mall of Boyle's sister, Lady Ranelagh, in whose house Boyle had his laboratory. It was Boyle who suggested to Sydenham the subject of his first book, the *Methodus*,<sup>15</sup> a short practical guide to the treatment of fevers.

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### The Methodus and Observationes

The first edition of the *Methodus* (1666) did not mention Locke; but the second edition of 1668 included two passages attributable to him: a poem over his name in praise of Sydenham and part of a new chapter on plague. Subsequently, the two men wrote a collection of medical essays in English (mostly in Sydenham's hand and the remainder in Locke's, though who was responsible for each essay is open to question), which survives as a bound volume of manuscripts that Sydenham named *Medical observations* (now RCP MS 572). Sydenham's third edition (1676), now renamed the *Observationes*, was a much larger book and planned on a far more ambitious scale. It opened with Sydenham's dedication to John Mapletoft, which included a handsome tribute to Locke, and the Preface to be discussed here. The main text was divided into

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six Sections of which the first five were devoted to one of Sydenham's favourite ideas, that of the 'Epidemic Constitution' as he observed it in the years 1661–75;<sup>19</sup> while the sixth Section concerned 'intercurrent fevers' like rheumatism which were distinct from those of the Constitutions.

The text of the *Observationes* gives the strong impression of having been patched together from the text of the *Methodus* mixed with new material and the manuscripts of *Medical observations*. These closely resemble passages in the *Observationes*, for which they were presumably drafts. It is noteworthy that they are almost entirely free from corrections and appear to be fair copies of earlier rough versions. Large stretches were obviously copied from the *Methodus*<sup>22</sup> but not perhaps in the best order. In the *Methodus*, Sydenham had explained his terminology for fevers at the start of the book, but in the *Observationes* it appeared in the fourth chapter of Section I. Although Sections I–V describe the epidemic constitution of successive years, the concept is explained for the first time only in the second chapter of Section I.

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#### The Preface

The text of the Preface to the *Observationes* seems totally out of place. In dedicating the book to Mapletoft, Sydenham had written that "I directed my attention to the close observations of Fevers [and] at length, hit on a method of curing them", but the Preface itself hardly deals with fevers at all and certainly not with the concept of the epidemic constitution which is mentioned so often in the subsequent chapters. Instead, it starts abruptly with a sweeping and apparently unrelated generalization: "Inasmuch as the structure of the human frame has been so set together by Nature, that it is unable, from the continuous flux of particles, to remain unchanged ... .'Clearly, this has nothing directly to do with medicine; it is a metaphysical statement concerning the nature of matter. As an opening to a treatise on fevers, it is extraordinary and, what is more, completely unexpected from an author who believed that medicine could be learnt only from experience. The implication is that this statement was not written by Sydenham but was a new passage added by a collaborator. The obvious candidate is Locke.

Unfortunately, no complete draft of the Preface is known. MS 572 has a short draft in Locke's writing (although parts, such as the frequent use of "I", suggest Sydenham) which occupies only one page with passages related to only two of the thirty-one paragraphs of the published text. It is followed by eleven blank pages. These may have been reserved for the substance of two other essays on general medical topics in Locke's writing, *Anatomia* and *De arte medica*, now in the National Archives (formerly the Public Record Office).<sup>23</sup>

If the Preface was partly written by Locke, it might well show signs of his style. In fact, one of his characteristics is immediately apparent: the pairs of adjectives so conspicuous in his *Essay concerning human understanding* (1690) where, for example, "clear and distinct" occurs forty-eight times. Similar pairs occur throughout the Preface (see ¶ 5(b) below). Apart from this, actual phrases from the Preface might be found in Locke's other work in the way that phrases from the two medical essays reappear later in his *Essay*. This proved to be the case to a remarkable extent, considering that the English of Locke's *Essay* and its drafts is here being compared with an English translation of the Latin of the Preface which may itself be a Latin translation of a lost English original. There seems little doubt that Locke was the author of the passages in question. That said, there are also many passages which are unlikely to be by Locke.

In what follows, the text of the Preface to the *Observationes*, as translated by R G Latham, <sup>25</sup> is given first in italics, followed by the corresponding passage found in various of Locke's writings: namely, *Medical observations* (RCP MS 572, various dates), *Anatomia* (1668), *De arte medica* (1669), Draft A of the *Essay* (1671), Draft B (? 1671) and the first edition of the *Essay* (1690). <sup>26</sup>

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¶1. Inasmuch as the structure of the human frame has been so set together by Nature, that it is unable, from the continuous flux of particles, to remain unchanged;  $...^{27}$ 

There are two assumptions. First, that all matter is composed of particles in flux, one form of the hypothesis known variously as corpuscularianism, atomism, or the Mechanical Philosophy. This is held to be true of matter in all its forms whether that be the "human frame", as here, or the invisible particles in air which may cause disease and which figure prominently in Boyle and in Sydenham. It is further assumed that all particles are identical individually (differences in gross structure are determined by differences in their arrangement) and that potentially they are freely mobile. This leads to the second and less obvious assumption that the human frame is "unable ... to remain unchanged", a belief with a long history, which is linked to the philosophical problem of "identity" (which appears to have no direct bearing on Sydenham's text).

The preface of MS 572 in Locke's writing has "Thus I think I have my being ... likewise in a continual flux & reflux in all & every of its parts". The "continuous flux of particles" reappears in his *Essay* (II.i.12; see also II.xxi.4), "... twill be impossible, in that constant flux of the Particles of our Bodies, that any Man should be the same Person, two days or two moments together." <sup>31</sup>

The *Essay* was published in 1690, fourteen years after Sydenham's Preface, but corpuscularianism and identity were familiar to Locke from his long association with Boyle. By the time the Preface appeared in 1676, Boyle had already published a succession of books, many of which Locke owned, dealing with the mechanical philosophy, and with identity.<sup>32</sup>

- ¶ 5. The advancement of medicine lies in ...
- $\P 5(a)$  a history of the disease; ... at once graphic and natural.
- " All this is only from history and the advantage of a diligent observation of these diseases, of their beginning, progress, and ways of cure ... (Anatomia, DS 86.17 33).
- $\P 5(b) \dots$  a description that shall be at once graphic and natural.

The first of many paired adjectives in the Preface:  $\P$  5. regular and exact;  $\P$  7. definite and certain;  $\P$  9. clear and natural; clear and visible;  $\P$  10. peculiar and constant; accidental and adventitious;  $\P$  12. uniform and consistent, and so on.

- $\int 5(c) \dots a$  Praxis, or Methodus, ...
- " ... established practises & methods of curing" (MS 572, fol. 2a); " .the reduceing those rules and methods to a certainty, on the practise whereof the ease and recovery of sicke men depends ... [De arte medica, DS 79.9].
- ¶ 7. ... it is necessary that all diseases be reduced to definite and certain species, and that, with the same care which we see exhibited by botanists in their phytologies. ... he would be a careless botanist, indeed, ... who only exhibited the marks by which the class was identified; ... and who overlooked the characters by which [the species] were distinguished from each other. ¶ 19 ... this disease is a species equally cogent with those that we have for believing a plant to be a species.

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" ... by collecting a certaine number of simple Ideas & joyning them to geather make the compound Idea of a species to which it gives or applyes one common name, ... soe that to one man [that name] stands for one thing & to another man for an other, as he has collected more or lesse simple Ideas ... Draft A, 2§. Cp. Draft B, 67§ onwards).<sup>34</sup>

In Section II of the *Methodus* devoted to intermittent fevers, Sydenham referred merely to "species and their peculiar natures" (*Etsi quod ad earum speciem, atque naturae proprietatem attinet*), <sup>35</sup> probably meaning no more by "species" than "sorts" or "kinds", as Locke did when he wrote: ".under one general name, which we cal a species ... or in plaine English a sort or kinde" (*Draft A*, §2). The more precise wording used in ¶ 7 may reflect Locke's experience of botany at Oxford. <sup>36</sup>

- ¶ 8. And when [diseases] are distributed into Species, it is most commonly done to serve ... the Humour of the Author, and his Theory of Philosophizing [Pechey's translation].
- ¶ 9. In writing the history of a disease, every philosophical hypothesis whatsoever, that has previously occupied the mind of the author, should lie in abeyance. ... Writers, whose minds have taken a false colour under their influence, have saddled diseases with phenomena which existed in their own brains only; ...
- " [Man's understanding is] very restlesse and unquiet till ... it has framed to its self some hypothesis and laid a foundation whereon to establish all its reasonings ... and puting all these phansies togeather fashioned to themselves systems and hypotheses" (*De arte medica*, DS 80.7–16). "... nor be at quiet in their minds without some Foundation or Principles to rest their Thoughts on." (*Essay I.iii.24*).
- ¶ 9. ... if [some symptom] fail to tally with the said hypothesis, they pass it over ... unless, by means of some philosophical subtlety, they can enlist it ...
- "The learned arts of disputeing which generally serve ... & make undetermined & doubtfull the signification of words, which hath hitherto passed under the laudable name ... of subtility & acutenesse" (Draft A, 4§). "This, though a very useless Skill ... hath yet passed hitherto under the ... Names of Subtlety and Acuteness; ... And no wonder, since the Philosophers of old ... found this a good Expedient to cover their Ignorance ... (Essay III.x.8).
- $\P$  10. Thirdly; it is necessary, in describing any disease, to enumerate the peculiar and constant phenomena apart from the accidental and adventitious ones: ...
- " ... it is very hard to set downe or collect that precise number of simple Ideas which doe necessarily goe to the makeing up any one species" (Draft A, 2§).
- ¶ 12. ... and whoever ... should accurately describe the colour, the taste, the smell, the figure, &c., of one single violet, would find that his description held good ... for all the violets of that particular species upon the face of the earth.
- " ... the Colours and Smells of Bodies; v.g. that of a Violet ... (Essay II.viii.13. See also Essay II.xxxii.14. "Violet" occurs in the Essay altogether nine times).

- ¶ 16. The other method whereby ... the art of medicine may be advanced turns chiefly upon ... some fixed, definite and consummate methodus medendi, ... I mean a line of practice which has been based and built upon a sufficient number of experiments, and has in that manner been proved competent to the cure of this or that disease.<sup>37</sup>
- " My intention therefor is ... to perfect the art and establish a setled certaine practise in the cure of sicknesses ... (*De arte medica*, DS 79.13). " .these observacons are ... established practises & methods of cureing, collected from a carefull observacon of a great number of instances in each disease" (Preface, MS 572, fol. 2a).
- $\P$  17. ... I must be allowed ... to prove that those remote and ultimate causes ... are altogether incomprehensible and inscrutable.  $\P$  20. ... the investigation and illustration of primary and ultimate causes is a neglect of our capabilities and a violation of nature.
- " ... the tools where with nature works and the changes she produces in these particles being too small and too subtle for the observation of our senses" (Anatomia, DS 89.11 and similar passages therein.) " .these alterations [e.g. gold melted by heat] being made by particles soe small & minute that they come not within the observation of my senses I cannot get an knowledg how they operate, ... Draft A, 15. See also Sydenham, De hydrope, 19-12, in Draft A, 15. London, Kettilby, 1683).

This important (and extremely radical) conclusion has inevitably attracted numerous comments.<sup>38</sup> The Preface goes on to say that it is quite sufficient for the physician "to know whence the mischief *immediately* arises" and for him to identify the complaint correctly ( $\P$  20).

Many passages in the published Preface are extremely unlikely to be due to Locke. The reference here in ¶ 18 to "a *substantial form*" stands out in total opposition not only to Locke's views but also to those held by many of his countrymen.<sup>39</sup> The "atmospheric constitution" was a favourite hypothesis of Sydenham's.

- ¶ 18. ... that humours may be retained in the body longer than is proper; ... They may also contract a morbific disposition from the existing atmospheric constitution. ... the said humours become exalted into a substantial form or species; 40 and these substantial forms or species manifest themselves in disorders coincident with their respective essences.
- "Those therefore who have been taught, that the several *Species* of Substances had their distinct internal *substantial Forms*; ... were led yet farther out of the way, by having their Minds set upon fruitless Enquiries after *substantial forms*, wholly unintelligible, ... *(Essay III.vi.10. See also §24 and 33. Locke says the same elsewhere: e.g. Draft A §1(2°) or Draft B 88§).* "Provided [Forme] be interpreted to mean but what I have express'd, and not a Scholastick *Substantial Forme*, which so many intelligent men profess to be to them altogether Un-intelligible".<sup>41</sup>

All in all, the Preface appears like the rest of the *Observationes* to be a mosaic, in this case formed from a majority of passages due to Sydenham and a minority due to Locke. Sydenham's high opinion of Locke has

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already been mentioned and it deserves to be remembered that Locke, for his part, coupled Sydenham's name in the *Essay* with the three outstanding scientists of the time: Boyle, Huygens and Newton.<sup>42</sup>

# Appendix: On Latham's Translation of Sydenham's Preface

Latham's translation is probably that most readily available today since, following its publication by the Sydenham Society in 1848–50, it was reprinted in facsimile in 1970 (Classics of Medicine Library, Birmingham, Alabama). A quick glance shows that it obviously differs in more than language from Sydenham's original Latin (London, 1676): the paragraphs are numbered and Sydenham's original paragraphs have been divided into shorter ones (e.g. the original opening paragraph of the Preface has become para. 1–4). The explanation lies in an earlier English translation of Sydenham's collected works. The first translation by John Pechey (London, 1696) had the original paragraphs and no numbering. The next translation by John Swan (London, 1742) split the paragraphs and also added the numbers still used today. Neither Pechey nor Swan satisfied the Sydenham Society who decided to have a totally new translation by Latham. Although he says that he worked from the Latin edition of Sydenham's collected works that William Greenhill had edited for the Sydenham Society in 1844, this was not strictly so. Whereas Greenhill, who thereby used the second edition of the Observationes (London, 1685), retained the original paragraphs and superimposed Swan's numbers (which consequently often occur within paragraphs), Latham adopted both Swan's shorter paragraphs and his numbering. In the first edition of the Preface, but not in later editions, para. 1–4 and 5 are joined: otherwise, according to Greenhill, the two editions differ only in the spelling of one word. What follows here is Latham's translation divided according to Sydenham's second edition, and with Swan's numbering.

#### The Translation

[1.] Inasmuch as the structure of the human frame has been so set together by Nature, that it is unable, from the continuous flux of particles, to remain unchanged; whilst, from the action of external causes, it is subjected to influences beyond its own: and since, for these reasons, a numerous train of diseases has pressed upon the earth since the beginning of time; so without doubt the necessity of investigations into the Art of Healing has exercised the wit of mankind for many ages before the birth, not only of the Greek but of the Egyptian Esculapius, the latter being earlier by a thousand years than the former. [2.] And, indeed, as no man can say who it was that first invented the use of clothes and houses against the inclemency of the weather, so also can no investigator point out the origin of Medicine—mysterious as the sources of the Nile. There has never been a time when it was not. Like other arts, however, it has been zealously or remissly cultivated, according to the differences of time and place. [3.] How much the ancients, and pre-eminently amongst these Hippocrates, performed is known to all. It is to these, and to the compilers from their writings, that we owe the greater part of our skill in therapeutics. Besides these, however, in the succeeding ages, others have been conspicuous for their industry: men who, by attending to anatomy, to pharmacy, to the methodus medendi, have done their best towards enlarging the boundaries of medicine. Nor have there been wanting those who, in our own time, and in our own island, have done good work in each kind of science that advances medicine. The praises of these I leave to better pens than my own. [4.] Nevertheless, how great soever the efforts of others may have been, I, for my own part, have always considered that the breath of life would have been to me a vain gift, unless I, working in the same mine with them, contributed my mite to the treasury of physic. Wherefore, after long meditation, and the diligent and faithful observations of many years, I at length determined—firstly, to state my opinion as to the means by which the science of medicine was to be advanced; secondly, to publish a sample of my endeavours in that department.

[5.] I conceive that the advancement of medicine lies in the following conditions: There must be, in the first place, a history of the disease; in other words, a description that shall be at once graphic and natural. There must be, in the second place, a *Praxis*, or *Methodus*, respecting the same, and this must be regular and

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exact. To draw a disease in gross is an easy matter. To describe it in its history, so as to escape the censure of the great Bacon, is far more difficult. Against some pretenders in this way, he launches the following censure—"We are well aware that there existeth such a thing as a Natural History; full in bulk, pleasant from its variety, often curious from its diligence. Notwithstanding, whoever would take away from the same the citations of authors, the empty discussions, and, finally, the book-learning and ornaments which are fitter for the convivial meetings of learned men than for the establishment of a Philosophy, would find that it dwindled into nothing. Such a natural history is far distant from the one we contemplate. <sup>43</sup> In like manner it is exceedingly easy to propound some common-place cure for a complaint. It is far harder, however, to translate your words into actions, and to square your results with your promises. This is well known to those who have learned that there occur in practical writers numerous diseases, which neither the authors themselves, nor any persons else besides, have been able to cure.

- [6.] In respect to the histories of a disease, any one who looks at the case carefully, will see at once that an author must direct his attention to many more points than are usually thought of. A few of these are all that need be noticed at present.
- [7.] In the first place, it is necessary that all diseases be reduced to definite and certain *species*, and that, with the same care which we see exhibited by botanists in their phytologies; since it happens, at present, that many diseases, although included in the same genus, mentioned with a common nomenclature, and resembling one another in several symptoms, are, notwithstanding, different in their natures, and require a different medical treatment. We all know that the term *thistle* is applied to a variety of plants; nevertheless, he would be a careless botanist, indeed, who contented himself with the general description of a thistle; who only exhibited the marks by which the class was identified; who neglected the proper and peculiar signs of the species, and who overlooked the characters by which they were distinguished from each other. On the same principle, it is not enough for a writer to merely note down the common phenomena of some multiform disease; for, although it may be true that all complaints are not liable to the same amount of variety, there are still many which authors treat alike, under the same heads, and without the shadows of a distinction, whilst they are in their nature as dissimilar as possible. This I hope to prove in the forthcoming pages. [8.] More than this—it generally happens that even where we find a specific distribution, it has been done in subservience to some favorite hypothesis which lies at the bottom of the true phenomena; so that the distinction has been adapted not to the nature of the complaint, but to the views of the author and the character of his philosophy. Many instances prove the extent to which medicine has been injured by a want of accuracy upon this point. We should have known the cures of many diseases before this time if physicians, whilst with all due good-will they communicated their experiments and observations, had not been deceived in their disease, and had not mistaken one species for another. And this, I think, is one reason why the Materia Medica has grown so much and produced so little.
- [9.] In writing the history of a disease, every philosophical hypothesis whatsoever, that has previously occupied the mind of the author, should lie in abeyance. This being done, the clear and natural phenomena of the disease should be noted—these, and these only. They should be noted accurately, and in all their minuteness; in imitation of the exquisite industry of those painters who represent in their portraits the smallest moles and the faintest spots. No man can state the errors that have been occasioned by these physiological [? philosophical] hypotheses. He writers, whose minds have taken a false colour under their influence, have saddled diseases with phenomena which existed in their own brains only; but which would have been clear and visible to the whole world had the assumed hypothesis been true. Add to this, that if by chance some symptom really coincide accurately with their hypothesis, and occur in the disease whereof they would describe the character, they magnify it beyond all measure and moderation; they make it all and in all; the molehill becomes a mountain; whilst, if it fail to tally with the said hypothesis, they pass it over either in perfect silence or with only an incidental mention, unless, by means of some philosophical subtlety, they can enlist it in their service, or else, by fair means or foul, accommodate it in some way or other to their

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[10.] Thirdly; it is necessary, in describing any disease, to enumerate the peculiar and constant phenomena apart from the accidental and adventitious ones: these last-named being those that arise from the age or temperament of the patient, and from the different forms of medical treatment. It often happens that the character of the complaint varies with the nature of the remedies, and that symptoms may be referred less to the disease than to the doctor. Hence two patients with the same ailment, but under different treatment, may suffer from different symptoms. Without caution, therefore, our judgment concerning the symptoms of disease is, of necessity, vague and uncertain. Outlying forms of disease, and cases of exceeding rarity, I take no notice of. They do not properly belong to the histories of disease. No botanist takes the bites of a caterpillar as a characteristic of a leaf of sage.

- [11.] Finally, the particular seasons of the year which favour particular complaints are carefully to be observed. I am ready to grant that many diseases are good for all seasons. On the other hand, there is an equal number that, through some mysterious instinct of Nature, follow the seasons as truly as plants and birds of passage. I have often wondered that this disposition on the part of several diseases, obvious as it is, has been so little observed; the more so, as there is no lack of curious observations upon the planets under which plants grow and beasts propagate. But whatever may be the cause of this supineness, I lay it down as a confirmed rule, that the knowledge of the seasons wherein diseases occur is of equal value to the physician in determining their species and in effecting their extirpation; and that both these results are less satisfactory when this observation is neglected.
- [12.] These, although not the only, are the main points to be attended to in drawing up the history of a disease. The practical value of such a history is above all calculation. By the side thereof, the subtle discussions, and the minute refinements wherewith the books of our new school are stuffed full, even *ad nauseam*, are of no account. What short way—what way at all—is there towards either the detection of the morbific cause that we must fight against, or towards the indications of treatment which we must discover, except the sure and distinct perception of peculiar symptoms? Upon each of these points the slightest and most unimportant circumstances have their proper bearings. Something in the way of variety we may refer to the particular temperament of individuals; something also to the difference of treatment. Notwithstanding this, Nature, in the production of disease, is uniform and consistent; so much so, that for the same disease in different persons the symptoms are for the most part the same; and the selfsame phenomena that you would observe in the sickness of a Socrates you would observe in the sickness of a simpleton. Just so the universal characters of a plant are extended to every individual of the species; and whoever (I speak in the way of illustration) should accurately describe the colour, the taste, the smell, the figure, &c., of one single violet, would find that his description held good, there or thereabouts, for all the violets of that particular species upon the face of the earth.
- [13.] For my own part, I think that we have lived thus long without an accurate history of diseases, for this especial reason; viz. that the generality have considered that disease is but a confused and disordered effort of Nature thrown down from her proper state, and defending herself in vain; so that they have classed the attempts at a just description with the attempts to wash blackamoors white.
- [14.] To return, however, to our business. As truly as the physician may collect points of diagnosis from the minutest circumstances of the disease, so truly may he also elicit indications in the way of therapeutics. So much does this statement hold good, that I have often thought, that provided with a thorough insight into the history of any disease whatsoever, I could invariably apply an equivalent remedy; a clear path being thus marked out for me by the different phenomena of the complaint. These phenomena, if carefully collated with each other, lead us, as it were, by the hand to those palpable indications of treatment which are drawn, not from the hallucinations of our fancy, but from the innermost penetralia of Nature.
- [15.] By this ladder, and by this scaffold, did Hippocrates ascend his lofty sphere—the Romulus of

attempted the removal and the expulsion of disease. The great sagacity of this man had discovered that Nature by herself determines diseases, and is of herself sufficient in all things against all of them. 46 This she is, being aided by the fewest and the simplest forms of medicine. At times she is independent of

medicine, whose heaven was the empyrean of his art. He it is whom we can never duly praise. He it was who then laid the solid and immoveable foundation for the whole superstructure of medicine, when he taught that our natures are the physicians of our diseases. 45 By this he ensured a clear record of the phenomena of each disease, pressing into his service no hypothesis, and doing no violence to his description; as may be seen in his books 'De Morbis,' De Affectionibus,' &c. Besides this, he has left us certain rules, founded on the observation of the processes of Nature, both in inducing and removing disease. Of this sort are the Coaca Praenotiones,' the 'Aphorisms,' &c. Herein consisted the theory of that divine old man. It exhibited the legitimate operations of Nature, put forth in the diseases of humanity. The vain efforts of a wild fancy, the dreams of a sick man, it did not exhibit. Now, as the said theory was neither more nor less than an exquisite picture of Nature, it was natural that the practice should coincide with it. This aimed at one point only—it strove to help Nature in her struggles as it best could. With this view, it limited the province of medical art to the support of Nature when she was enfeebled, and to the coercion of her when she was outrageous; the attempt on either side being determined by the rate and method whereby she herself

even these.

[16.] The other method whereby, in my opinion, the art of medicine may be advanced, turns chiefly upon what follows, viz. that there must be some fixed, definite, and consummate methodus medendi, of which the commonweal may have the advantage. By fixed, definite, and consummate, I mean a line of practice which has been based and built upon a sufficient number of experiments, and has in that manner been proved competent to the cure of this or that disease. I by no means am satisfied with the record of a few successful operations, either of the doctor or the drug. I require that they be shown to succeed universally, or at least under such and such circumstances. For I contend that we ought to be equally sure of overcoming such and such diseases by satisfying such and such intentions, as we are of satisfying those same intentions by the application of such and such sorts of remedies; a matter in which we generally (although not, perhaps, always) can succeed. To speak in the way of illustration, we attain our ends when we produce stools by senna, or sleep by opium. I am far from denying that a physician ought to attend diligently to particular cases in respect to the results both of the method and of the remedies which he employs in the cure of disease. I grant, too, that he may lay up his experiences for use, both in the way of easing his memory and of seizing suggestions. By so doing he may gradually increase in medical skill, so that eventually, by a long continuance and a frequent repetition of his experiments, he may lay down and prescribe for himself a methodus medendi, from which, in the cure of this or that disease, he need not deviate a single straw's breadth. [17.] Nevertheless, the publication of particular observations is, in my mind, of no great advantage. Where is the particular importance in just telling us that once, twice, or even oftener, this disease has yielded to that remedy? We are overwhelmed as it is, with an infinite abundance of vaunted medicaments, and here they add a new one. Now, if I repudiate the rest of my formulae, and restrict myself to this medicine only, I must try its efficacy by innumerable experiments, and I must weigh, in respect to both the patient and the practice, innumerable circumstances, before I can derive any benefit from such a solitary observation. But if the medicine never fails in the hands of the observer, why does he confine himself to particular cases? He must either distrust himself, or he must desire to impose upon the world in detail, rather than in gross. How easy a matter it is to write thick volumes upon these points is known even to beginners. It is also known that the foundation and erection of a perfect and definite methodus medendi is a work of exceeding difficulty. If, in each age of the world, a single person only had properly treated upon one single disease, the province of the physician, or the art of healing, would long ago have reached its height; and would have been as complete and perfect as the lot of humanity admits. It is ruin of our prospects to have departed from our oldest and best guide, Hippocrates, and to have forsaken the original methodic medendi. This was built upon the knowledge of immediate and conjunct causes, things of which the evidence is certain. Our modern doctrine

is a contrivance of the word-catchers; the art of talking rather than the art of healing. That I may not seem to

speak these things rashly, I must be allowed to make a brief digression; and to prove that those remote and ultimate causes in the determination and exhibition of which the vain speculations of curious and busy men are solely engaged, are altogether incomprehensible and inscrutable; and that the only causes that can be known to us, and the only ones from which we may draw our indications of treatment, are those which are proximate, immediate, and conjunct.

[18.] We must begin with noticing that humours may be retained in the body longer than is proper; Nature being unable to begin with their concoction, and to end with their expulsion. They may also contract a morbific disposition from the existing atmospheric constitution. Finally, they may act the part of poisons from the influence of some venomous contagion. From any one of these causes, or from any cause akin to them, the said humours become exalted into a substantial form or species; and these substantial forms or species manifest themselves in disorders coincident with their respective essences. Of these disorders the symptoms, in the eyes of the unwary, originate either in the nature of the part which the humour has attacked, or else in the character of the humour itself anterior to its specific metamorphosis. Nevertheless, in their true nature, they are the disorders that depend upon the essence of the said species recently exalted to the particular degree in question. Hence every specific disease is a disorder that originates from this or that specific exaltation, or (changing the phrase) from the specification of some juice in the living body. Under this head may be comprised the greatest part of those diseases that are reducible to some given form or type, in the production and maturation whereof Nature binds herself to a certain method as stringently as she does with plants and even animals. Each plant and animal has its proper and peculiar disorders. In like manner, each juice has its exaltations as soon as it has broken out into a species. Of this we have a clear, visible, and daily proof in the different species of excrescences, which trees and fruit exhibit in the shape of moss, and mistletoe, and fungi, and the like. Whether arising from a perversion and depravation of the nutritive juice, or from any other cause, these excrescences are, each and all, essences or species wholly distinct and different from the parent stock, whether tree or shrub. [19.] Let a person seriously and accurately consider the phenomena which accompany such a fever as a quartan ague. It begins almost always in autumn; it keeps to a regular course of succession; it preserves a definite type; its periodical revolutions, occurring on the fourth day, if undisturbed by external influences, are as regular as those of a watch or any other piece of machinery; it sets in with shivers and a notable feeling of cold, which are succeeded by an equally decided sensation of heat, and it is terminated by a most profuse perspiration. Whoever is attacked must bear with his complaint till the vernal equinox, there or thereabouts. Now putting all this carefully together, we find reasons for believing that this disease is a species equally cogent with those that we have for believing a plant to be a species. The plant springs from the earth; the plant blooms; the plant dies: the plant does all this with equal regularity. All its other affections are those of its essence. It cannot easily be comprehended how the disease in question can arise from a combination of either principles or evident qualities, whilst a plant is universally recognised as a substance, and as a distinct species in nature. Nevertheless, I cannot deny that whereas all species, both of plants and animals, with the exception of a very few, subsist by themselves, the species of disease depend upon the humours that engender them.

[20.] Now, although it appears, from what has been said, that we have shown reason for considering the causes of the majority of diseases as inscrutable and inexplicable, the question as to how they may be cured is, nevertheless, capable of solution. All that we have just dealt with has been the case of the remote causes. Here it is evident to every one, that curious speculators lose their labour; since the investigation and illustration of primary and ultimate causes is a neglect of our capabilities, and a violation of nature. Hand in hand with this is the contempt for those causes that ought to be, and which can be understood; which lie before our feet; which require no rotten supports; which appeal to the understanding at once; which are revealed by either the testimony of our senses, or by anatomical observations of long standing. Such are the causes which we call conjunct and immediate. As it is clearly impossible that a physician should discover those causes of disease that are not cognisable by the senses, so also it is unnecessary that he should attempt

it. It is quite sufficient for him to know whence the mischief *immediately* arises, and for him to be able to distinguish with accuracy between the effects and symptoms of the complaint which he has in hand, and

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those of some similar one. In a pleurisy, for instance, a man may work much, and work in vain, before he will understand the vicious crasis, and the incoherent texture of blood which is the primary cause of the disease; yet, if he know rightly the cause by which it *is immediately* produced, and if he can rightly discriminate between it and other diseases, he will be as certain to succeed in his attempts at a cure, as if he had attended to idle and unprofitable searches into remote causes. This, however, is a digression.

[21.] Now if any one ask whether, in addition to the two aforesaid *desiderata* in medical science (viz., the true and genuine history of diseases, and the regular and definite *methodus medendi*), a third may not also be enumerated, viz., the discovery of specific remedies, he will find that I agree with, and that I second his doctrine. For the cure of acute diseases the method seems the best; since, inasmuch as in these Nature herself establishes some process of evacuation, whatever method promotes such evacuation, and thereby helps Nature, conduces, of necessity, towards the cure of the disease. Nevertheless, by the help of specifies, if such could be found, the patient might find a shorter way to his recovery. And such is desirable. He might also (which is more important still) be placed beyond the pale of those dangers which follow the aberrations of Nature; for into such, during the expulsion of morbific causes, and in spite of the best and most powerful assistance from the physician, she frequently and unwillingly has fallen.

[22.] In respect to the cure of chronic diseases, although I have no doubt but that a greater progress in it than is expected at the first glance may be hoped for from the method alone, I am still convinced that, in the cure of many of the most important that afflict humanity, our method is unavailing. This happens because in chronic diseases the method of Nature herself for the ejection of the morbific matter is less efficacious than in the acute ones; whilst it is by joining hands with Nature, and by aiming properly at the same mark, that we are enabled to destroy the disease. In overcoming a chronic disease, he has the best and truest claim to the name of physician, who is in possession of the medicine that shall destroy the *species* of the disease, not he who merely substitutes one primary or secondary quality for another. This he can do without extinguishing the species at all; i.e., a gouty patient may be cooled or heated as the case may be, and his gout continue unconquered. This method of merely introducing different qualities can no more effect the direct destruction of specific diseases, than a sword can quench a flame. What can be done by cold, or heat, or wet, or dry, or by any of the secondary qualities that depend upon them, against a disease whose essence consists in none of them? [23.] Any one who objects to me that a sufficiency of specific remedies is already known to the world, will, upon a due consideration of the subject, take the same view with myself. I am sure of this, since the only medicine that supports his doctrine is the Peruvian bark. Medicines that specifically answer to the indications of treatment, and medicines that *specifically* cure diseases, are as wide as the poles asunder. In the first case, we satisfy the curative indications, and drive away the ailment: in the second, we take no cognisance of the indication or intention at all, whilst we destroy the disease directly and immediately. For instance, mercury and sarsaparilla are commonly called specifics in syphilis. Nevertheless, they are no proper and direct specifics at all; nor will they be considered as such, until it be shown by cogent and irrefragable proofs that the one produces its beneficial effects without salivation, and the other without diaphoresis. In this way many different diseases are cured by their different appropriate evacuations; but it is the evacuation that performs the cure, the medicine being specific to the evacuation. To the disease itself, self-sufficiently and directly, they are no more specific than a lancet is specific to a pleurisy.

[24.] Specific medicines, in the restricted sense of the word, are by no means of every-day occurrence. They do not fall to every man's lot. Nevertheless, I have no doubt, but that out of that abundant plenitude of provision for the preservation of all things wherewith Nature burgeons and overflows (and that, under the command of the Great and Most Excellent Creator), provision also has been made for the cure of the more serious diseases which afflict humanity, and that near at hand and in every country. It is to be lamented, indeed, that the nature of plants is not more thoroughly understood by us. In my mind, they bear off the palm from all the rest of the *Materia Medica*. They offer also the most reasonable hopes for the discovery of remedies of the sort in question. The parts of animals are too like those of the human body: minerals are too

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unlike. That minerals, however, are more energetic in satisfying indications than either of the two other classes of remedies, and that the difference in character is the reason for their doing so, I freely confess. Still they are not specific remedies in the sense and manner explained above. For my own part, I can claim nothing beyond the credit of having undergone the labour and trouble of considering these matters carefully, and that for many years past. Nevertheless, I have not yet been so successful as to venture upon the public with my ideas upon these things at once with prudence and confidence.

[25.] Although, however, the vegetable world is my favorite source for medicines, I am far from despising those excellent remedies which we procure from the other two kingdoms; and which having been discovered, in either this or any other age, by human labour and human industry, are found to satisfy the intentions of treatment. Amongst these, the place of honour is due to what are called *Dr. Goddard's drops*. They are prepared by Dr. Goodhall, a learned man, and a skilful investigator both of methods and remedies. I give these a just preference over all other volatile spirits whatsoever for energetically and efficaciously attaining the end for which they are applied.

[26.] To conclude—having in this introduction promised that I would give a sample of those improvements which I have done my best to effect for medicine, I here attempt to fulfil my promise by publishing 'A History and Cure of the Acute Diseases.' In doing this I am well aware that I shall exhibit for the benefit of the idle and ignorant the labour of the best years of my life, and the results of much toil both of mind and body. I know, too, the bad temper of the age I live in. I shall reap only a harvest of abuse. Better would it have been for my present fame to have continued some vain and useless speculation. Be it so. I wait for my reward elsewhere. [27.] Now if any one object that men as conversant with medicine as myself differ from my doctrines, I can only answer that my business has been to support my own observations, not to discuss the opinions of others. In doing this, I beg the reader's patience, not his favour. The facts themselves will shortly speak for themselves; and they alone will show whether on the one side I act with truth and honesty, or whether, on the other, like a profligate and immoral and wicked man, I am to become a murderer even in the grave. I ask pardon where the history is less careful than I meant it to be, since I wish less to exhaust my subject than to encourage those who have better parts than myself to undertake hereafter what I now attempt imperfectly.

[28.] One point still remains to be indicated to the reader. I have no intention of swelling out the following pages with an infinite number of particular cases, under the idea of claiming credit for the method that they embody. It would be vain and wearisome to repeat in detail the points which I have reduced to a general expression. I consider it sufficient to append here and there, at the conclusion of the general statement, some particular observation containing the substance of the method preceding; and I do this more especially for the last few years. In the mean time I warrant my general methods. Each has been established and confirmed by reiterated experiments.

[29.] Whoever expects a great mass of remedies and formulae in the following pages will be disappointed. The physician must apply these according to circumstances and his discretion. I only mention the indications he must satisfy, and that in respect to their order and their time. True medicine consists in the discovery of the real indications rather than in the excogitation of remedies. Those who have neglected this have put arms into the hands of the empiric, and taught him to imitate the physician.

[30.] One objection against me will be made by the vulgar and unthinking only, viz. that of having renounced the proper pomp of physic, and of having recommended medicines so plain and simple as not to be reducible to the 'Materia Medica.' Wise men know this—whatever is useful is good. They know, also, that Hippocrates recommended bellows for the colic,<sup>47</sup> and nothing at all for the cancer.<sup>48</sup> They know, too, that similar treatment is to be discovered in almost every page of his writings; and withal that his merits in medicine are as as if he had loaded his pages with the most pompous formulae.

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[31.] I also intended to have written a history of Chronic Diseases, or at least one on those that I had most frequently treated. As this, however, is a work of great labour, and as the present lucubrations are experimental, I waive the subject for the present.

## **Footnotes**

- <sup>1</sup> The literature on Sydenham is considerable: a bibliography up to 1990 is in G G Meynell, *A bibliography of Dr Thomas Sydenham* (1624–1689), Folkestone, Winterdown Books, 1990, pp. 142–61. For general accounts, see J F Payne, *Thomas Sydenham*, London, T F Unwin, 1900; *idem, Dictionary of National Biography*, 1889, vol. 19, pp. 246–53; Kenneth Dewhurst, *Dr Thomas Sydenham* (1624–1689): his life and original writings, London, Wellcome Historical Medical Library, 1966; *Idem, John Locke* (1632–1704), *physician and philosopher*, London, Wellcome Historical Medical Library, 1963; H J Cook, 'Thomas Sydenham', *Oxford Dictionary of National Biography*, Oxford University Press, 2004, vol. 53, pp. 535–42 (hereafter *Oxford DNB*). For general questions, see, for example, Gunnar Aspelin, 'Locke and Sydenham', *Theoria* (Göteborg), 1949, **15**: 29–37; L S King, 'Empiricism and rationalism in the works of Thomas Sydenham', *Bull. Hist. Med.*, 1970, **44**: 1–11; François Duchesneau, *L'empirisme de Locke*, The Hague, M Nijhoff, 1973; Patrick Romanell, *John Locke and medicine*, Buffalo, Prometheus Books, 1984.
- <sup>2</sup> Thomas Sydenham, *Observationes medicae circa morborum acutorum historiam et curationem*, London, G Kettilby, 1676. For detail, see Meynell, *A bibliography*, op. cit., note 1 above, ch.1.
- <sup>3</sup> G G Meynell, *Materials for a biography of Dr Thomas Sydenham* (1624–1689): a new survey of public and private archives, Folkestone, Winterdown Books, 1988, pp. 45–55, esp. §11. 'Sydenham on the principles of medicine', pp. 43–5.
- <sup>4</sup> Guy Meynell, 'Locke's collaboration with Sydenham: the significance of Locke's indexes', *Locke Newsletter*, 1996, **27**: 65–74.
- <sup>5</sup> G G Meynell, *Authorship and vocabulary in Thomas Sydenham's* Methodus *and* Observationes. *With an appendix on isolating key words and phrases*, Dover, Winterdown Books, 1995; *idem, Materials*, op. cit., note 3 above, pp. 41–2, 82–5.
- <sup>6</sup> Meynell, *Materials*, op. cit., note 3 above, pp. 32, 33, 43–4.
- <sup>7</sup> When he entered Magdalen Hall, Oxford, on 1 July 1642, he was listed as "Arm"; i.e. armiger, one entitled to a coat-of-arms (Ibid., p. 10).
- <sup>8</sup> Montague Burrows (ed.), *The register of the visitors of the University of Oxford from AD 1647 to AD 1658*, Camden Society, New Series 29, London, for the Camden Society, 1881, p. 36; Meynell, *Materials*, op. cit., note 3 above, p. 17.
- <sup>9</sup> II.2.29 (signifying: section II, chapter 2, paragraph 29).
- <sup>10</sup> Sydenham, *Observationes*, dedication; Meynell, *Materials*, op. cit., note 3 above, pp. 68, 75.
- <sup>11</sup> G G Meynell, 'A database for John Locke's medical notebooks and medical reading', *Med. Hist.*, 1997, **42**: 473–86 (the raw data now form Part II of the writer's web site, <a href="http://www.haven.u-net.com">http://www.haven.u-net.com</a>). For details of Locke's ill health and career at Oxford, see notes 1–3.
- <sup>12</sup> Kenneth Dewhurst (ed.), *Thomas Willis's Oxford lectures*, Oxford, Sandford Publications, 1980; Guy Meynell, ' Locke as a pupil of Peter Stahl', *Locke Studies*, 2001, **1**: 221–7.

- <sup>13</sup> See Ayliffe Ivye to John Locke, 20 May 1660, Letter 97 in *The correspondence of John Locke*, ed. E S de Beer, 8 vols, Oxford, Clarendon Press, 1976, vol. 1, pp. 146–7.
- <sup>14</sup> Kenneth Dewhurst, 'Locke's contributions to Boyle's researches on the air and on human blood', *Notes and Records of the Royal Society of London*, 1962, **17**: 198–206.
- <sup>15</sup> Thomas Sydenham, *Methodus curandi febres, propriis observationibus superstructa*, London, J Crook, 1666. For the Latin text with an English translation in parallel, see G G Meynell (ed.), Folkestone, Winterdown Books, 1987.
- <sup>16</sup> Guy Meynell, 'Sydenham, Locke and Sydenham's *De peste sive febre pestilentiali*', *Med. Hist.*, 1993, **37**: 330–2. See Sydenham, *Observationes*, II.2.26–28.
- <sup>17</sup> G G Meynell (ed.), *Thomas Sydenham's* 'Observationes medicae' (*London*, 1676) and his 'Medical observations' (*Manuscript 572 of the Royal College of Physicians of London*), with new transcripts of related *Locke MSS*. in the Bodleian Library, Folkestone, Winterdown Books, 1991.
- <sup>18</sup> "Physician and divine"; Gresham professor of physic, 1675–79, Oxford DNB, vol. 36, pp. 584–5.
- <sup>19</sup> Sydenham believed that an epidemic was caused by effluvia from the bowels of the earth which differed from year to year so that each epidemic was marked by a different accompanying condition like enteritis or pleurisy (I.1.6, I.2.1). See Major Greenwood, 'Sydenham as an epidemiologist', *Proc. R. Soc. Med.*, 1918–19, **12**: 55–76. I Galdston, 'The epidemic constitution in historic perspective', *Bull. N. Y. Acad. Med.*, 1942, **18**: 606–19.
- <sup>20</sup> Summarized in Table 4 in Meynell (ed.), *Thomas Sydenham's* 'Observationes medicae', op. cit., note 17 above.
- <sup>21</sup> Earlier drafts, some heavily corrected, are in Bodleian MS Locke c.29 (Philip Long, *A summary catalogue of the Lovelace collection of the papers of John Locke in the Bodleian Library*, Oxford University Press, 1959, pp. 37–8). An example is shown in Fig. 7 in Dewhurst, *Dr Thomas Sydenham*, op. cit., note 1 above.
- <sup>22</sup> They can be followed in Meynell's edition (op. cit., note 15 above) where the paragraphs are numbered by the same system.
- <sup>23</sup> Guy Meynell, 'Locke as author of *Anatomia* and *De arte medica*', *Locke Newsletter*, 1994, **25**: 65–73.
- <sup>24</sup> Ibid.
- <sup>25</sup> At the suggestion of a referee, the translation by R G Latham (1848) for the Sydenham Society is given here as an appendix. The Latin original appears as Part IV of <a href="http://www.haven.u-net.com">http://www.haven.u-net.com</a>.
- <sup>26</sup> Apart from Latham, the texts used here include Dewhurst, *Dr Thomas Sydenham*, op. cit., note 1 above, pp. 79–84, 85–93; P H Nidditch and G A J Rogers (eds), *Drafts for the* Essay concerning human understanding, *and other philosophical writings. Volume I, Drafts A and B*, Oxford, Clarendon Press, 1990; John Locke, *An essay concerning human understanding*, ed. P H Nidditch, Oxford, Clarendon Press, 1975.
- <sup>27</sup> Quemadmodum a natura ita comparata est humani corporis Fabrica, ut nec prae jugi particularum fluxu sibi semper constet, ...
- <sup>28</sup> Vere Chappell (ed.), *The Cambridge companion to Locke*, Cambridge University Press, 1994; R H Kargon, *Atomism in England from Hariot to Newton*, Oxford, Clarendon Press, 1966; Antonio Clericuzio, 'A redefinition of Boyle's chemistry and corpuscular philosophy', *Ann. Sci.*, 1990, **47**: 561–89.

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44 "Physiological" does not follow the sense of the opening of [9.]. Possibly a typesetting error with "Physiol ..."

Boyle's corpuscular philosophy', Locke Studies, 2003, 3: 133–45.

<sup>43</sup> Francis Bacon, Descriptio globi intellectualis (1653), ch. 3.

<sup>42</sup> From *The epistle to the reader*.

substituted for "Philosoph ... ."

<sup>45</sup> Hippocrates, *Epidemics VI*, 5.1.

<sup>46</sup> Hippocrates, *Nutriment*, 15, 39.

<sup>47</sup> Hippocrates, *Diseases III*, 14.

<sup>48</sup> Hippocrates, *Aphorisms*, 6, 38.

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