THE HARVEIAN ORATION

DELIVERED BEFORE

THE ROYAL COLLEGE OF PHYSICIANS,

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I PASS from this reflection to an exposition of the claims which have been put forward on behalf of Walter Warner, the editor in 1631 of Harriott's *Algebra*, to the discovery of the circulation of the blood; and I do this by a natural transition, Walter Warner having been a man in whose mind, all his mathematics notwithstanding, the *idola* in question greatly abounded. Warner's claims are alluded to by Dr. Willis in a note to his excellent *Life of Harvey* (see p. lxiv). They are put forward by Anthony Wood, upon the authority of Dr. Pell, a man distinguished as one of Oliver Cromwell's diplomatists, and afterwards as an assiduous supporter of the then young Royal Society; and upon that of Dr. Morley, some time Dean of Christchurch, and afterwards Bishop of Winchester (see Wood, *Athenæ Oxonienses*, i, 461, ed. 2nd of 1721, vol. i, p. 302, ed. Bliss). Aubrey, a contemporary of Wood's, appears, from a note at p. 417 of the second volume of his *Lives of Eminent Persons*, to have had the same story from Izaak Walton, who gave Dr. Morley again as his authority; and Aubrey repeats the tale with certain additions, and notably with that of Dr. Pell's authority, at p. 577 of the same volume. The same story was pointed out to me by one of the officials in the Bodleian Library as being given in an anonymous biographical miscellany to be found in the Rawlinsonian Collection, B 158, p. 152-153. This MS. appears to be of the latter half of the seventeenth century, and its legend runs to the following effect. A certain Henry, Earl of Northumberland, being imprisoned in the Tower, did, for the better passing of his time, get several learned persons to live and converse with him; one of these men (whom Aubrey tells us, *l.c.*, p. 368, the world called the Earl of Northumberland's magi) was "Mr. Warrener." And the MS. proceeds, "He was the inventor, probably, of the circulation of the blood, of which subject he made a treatise, consisting of two books, which he sent to Dr. Harvey, who epitomised and printed them in his own name; he usually said that Dr. Harvey did not understand the motion of the heart, which was a perfect hydraulik. . . . Dr. Pain, that very ingenious and learned canon of Christchurch, told me that he had seen and perused this book of Warrener's." Finally, the excellent *Biographia Britannica* has embalmed Wood's and Aubrey's story, in the articles "Harriott" and "Harvey," pp. 2542 and 2550. Ed. 1757. Many *à priori* improbabilities will be seen at once to attach to this story, and it is easy enough to discredit more than one of the witnesses. But I have better than indirect evidence to bring forward, and I will have the agreeable mental exercise of excogitating it to the ingenuity of my hearers, which ingenuity will be sharpened, no doubt, by their regard for their own Harvey, and strengthened by the belief that

"Whatever records spring to light,
He never shall be shamed."

I may be asked, after this quotation, why I should have thought it worth while to investigate Walter Warner's claims at all. I will shelter myself, in the first instance, behind the example of Sir George Ent who, feeling and acting by Harvey as Launcelot in his better days felt and acted by Arthur, took similar pains to set aside the similar fable as to Harvey's indebtedness to Father Sarpi. And, in the second place, I will remind my hearers that it was but as recently as 1838, that an article appeared in the *London and Westminster Review*, in which the claims of the Italian monk, just mentioned, were once again brought forward with surprising confidence, plausibility, and ignorance.

It was possible, I thought, that the same paltry but evil spirit which animated Dutens in writing his *Inquiry into the Origin of the Discoveries attributed to the Moderns* (1769), and in coming to the conclusion that every great man in modern times had been anticipated by somebody or other in ancient ones, might still be going about in dry places, and might wholly enter into and entirely fill up the soul of some small antiquary, who, coming under such inspiration and guidance upon the passages which I have collected, might proceed to instruct the literary

* Concluded from page 4 of last number.

public as to Warner's claims. Whilst considering what indirect evidence might be brought together to rebut this possible attempt at detraction, I came upon what led me to the discovery of the direct evidence I have promised to lay before you, in the shape of a clue which brought me, after a somewhat tortuous course, upon Walter Warner's actual autograph MS. I found, whilst following up Dr. Pell's history, scattered through Dr. Birch's unindexed *History of the Royal Society*, that Dr. Birch had procured a number of MSS. of Mr. Walter Warner's for that Society mixed up with Dr. Pell's (see vol. ii, p. 342; vol. iv, p. 447). Coupling this statement with the voucher for Warner's claims, ascribed by Wood and Aubrey to Dr. Pell (who, however, is never reported in Dr. Birch's *History*, so far as I found, to have given currency to this statement), I thought that by these MSS. I should be able to test the truth of these statements. But the librarian of the Royal Society knew nothing of any MSS., either of Pell's or of Warner's; and, as the result will show, it would have been odd if he had—at least, in his official capacity. I then made inquiry of the Duke of Northumberland, in whose library the MS. of Warner, once a pensioner of his house, might possibly be preserved; but Mr. J. E. Martin informed me that this hope was a vain one. I found that Sion College had once possessed one MS. of Warner; but I learnt from the Rev. W. W. Milman that they had lost it, and much besides, in the great fire of London in 1666. Finally, when taking the register of Merton College up to the British Museum for the purpose of comparing the entries made in that volume during Harvey's wardenship with his one authentic autograph MS. now in the national collection, I bethought me of making, at the same time, some inquiries as to Warner and Pell; and at last, when I least expected it, and had long ceased to hope for it, I came upon Walter Warner's MS., contained in Dr. Birch's collection, which, according to him, had been made over to the Royal Society, under the title, 4,394, *Birch Collection*, numbered on in continuation of the *Sloane Collection*.

Mr. E. Maude Thompson, by the employment of various scientific methods, the observation of which went some way to compensate me for the tedious labour entailed upon me by the result to which they brought him, identified the MS. as being really Warner's, and even in bringing its date down to the same close upon 1610, half-a-dozen years or so, therefore, before Harvey first lectured at the College of Physicians. The MS. being thus identified, I set myself down to look through its 416 folio pages, the average number of lines in a page being thirty-three or thirty-four; the average of words, many of them idle ones, being eight or nine in a line. I do not think it is very likely that I have missed any clearer exposition of Warner's views than the one which I am about to read from page 138; nor do I think that, by choosing it, I can in any way misrepresent them, for they are stated elsewhere in the *Treatise* in very much the same words, *c.g.*, p. 137. These, then, were his views. "By this spontaneall pulsatory motion the blood is continually extracted from the vaines (propter fugam vacui) as well originally exsuctory as secondarily circulatory and propelled into the arteries (propter fugam penetrationis), but with some diversity in the distribution, some part thereof being propelled up into the head by the internal jugular arteries, ad plexum choroideum for spirito-faction, the rest into all the rest of the arteries in universum corpus for organo-faction. Out of that part of the blood that is propelled by the jugular arteries up to the head, the spiritus confusus or immersus thereof being expressed and segregated in plexu choroidei, either by excussion or exhalation, and animal spirits, thereof made by the self-operation of the præexistent in somno, it is again distributed as before, one portion thereof being still derived and transmitted to the heart, ad motum spontaneum pulsationis ciendum, and so about again, perpetuâ circulatione durante fabricâ corporeâ, and all violent destructions or impediments abstracted."

It is, perhaps, needless to dwell further upon Warner's claims—certainly I do not propose to trouble you with reading to you any more of his speculations and conclusions. I have, however, had a copy made of folio pages 140, 141, 142, 194, and 195, and, though the gift may not seem a very valuable one, it will enable any fellow of Harvey's College to satisfy himself abundantly, and within our own walls, as to the real merits of the claimant before us, if the College will allow it to find a place in their library. In the words of Harvey's favourite poet,

"His saltem accumulæ donis et fungar inani
Munere."

In all seriousness it is something to know what a contemporary of Harvey, and he a mathematician of some eminence, could write only some ten years before the actual demonstration of the circulation of the blood was given to the world.

Let me say, however, that I do not think it by any means impossible that Harvey may have read this *Treatise* of Warner's, hard though the labour must have been to him, and little though he could have profited

by it. For, in many parts of Harvey's Treatise, *De Motu Cordis*, we meet with phrases which seem as if they had been used with a special reference to Warner's views; and his dissertation has at least this claim upon my gratitude, that it has made me think that I understand Harvey's meaning the better for having read it. I fancy, in fact, that I recognise such phrases in Harvey's words (*De Motu*, p. 58, p. 56, ed. Willis), "Absque dolore vel colore vel fugâ vacui," and in such words as "longe plus est quàm partium nutritioni congruens est." He might have been alluding to almost any page of Warner's MS. in his repudiation (p. 116, see *Epistola Secunda ad Riolanum*) of the hypothesis of various sorts of spirits. But there is one of Harvey's many noble and candid, whilst measured and well balanced utterances, which seems to me to be admirably suited to serve as a text for an exposition which perhaps some future Harveian orator may undertake, of the exact relation which his discoveries held to the knowledge and the ignorance, not only of Walter Warner, but of all others of his contemporaries or predecessors. These words run thus (*De Motu*, p. 34, ed. 1766, p. 33 ed. Willis), "Sed et hoc" (namely, the transmission of the blood by the action of the heart, from the veins into the arteries, through the ventricles of the heart into the whole body), "omnes aliquo modo concedunt et ex cordis fabricâ et valvularum artificio positione et usu colligunt. Verum tanquam in loco obscuro titubantes cæciter videntur et varia subcontraria et non coheræntia componunt et ex conjecturâ plurima pronunciant ut ante demonstratum est." This may be translated thus: "But it may be said, that all competent persons accept these views in a more or less modified form, and have been convinced of the truth of them from the structure of the heart, and the contrivance, position, and use of the valves. But they seem to me to make as little use of their eyes as men do who are stumbling about in a dark place, and their account of the matter is made up of heterogeneous, contradictory, and incompatible statements, and very much of it is pure guesswork, as I have already shewn." These words, the Latin ones, not my translation of them, were published, if not written nine years (see p. 5, *Harveii Opera*, ed. 1766, *Dedicatio*) and more after Harvey had first proved the facts of the circulation, and from them we gather that his discovery had, even so early as that date, got out of the stage in which a discovery is considered to be untrue, and got into that in which it is said that everybody knew it before. In no subject could it have been easier to make out a plausible case than in this of the circulation of the blood. Piccolhomini (an acquaintance with whom I owe to Mr. Walter Warner, see his Treatise, pp. 194, 200, and 201), had given a diagram, it is there before you, copied from the copy of his work in our library, of the junction of the portal and hepatic twigs, incorrect enough, no doubt, and obtained by a false method (see Harvey, *Epistola Prima ad Riolanum*, p. 105, ed. 1766), but still something in the way of a working hypothesis (see Piccolhomini, *Anatomica Praelectiones*, Romæ, 1586, p. 117). Servetus had speculated, but rightly, as to the lesser circulation; so had Cæsalpinus; and on Harvey's own showing (p. 15, *Opera*, ed. 1766), Realdus Columbus and Walter Warner, p. 132 (4394 *Birch Coll. MS.*), had spoken of the heart, in 1610, as being "a mere muscle, very strongly and artificially woven, and contrived with omnimodal nerveous fibres, direct, transverse, and oblique, as it were of purpose, for dilatation and contraction, according to the fashion of other muscles." And of the action of the auriculo-ventricular and arterial valves, Harvey himself, *nived animâ*, with untarnished sincerity, repeatedly (see *De Motu*, pp. 14, 51, 53, 67, 81), speaks as of something known to all men, "id omnes norunt" (p. 44). What then, it might have been triumphantly asked, was there left for Harvey to discover, when the action of the valves of the heart, its muscular character, and so much else, was already to be found in the writings or teachings of his predecessors? To all this we can answer, as indeed, it seems probable, was practically answered even within Harvey's lifetime, what was left for Harvey to discover was nothing less than the *circulation itself*. His predecessors had but impinged, and that by guesswork, upon different segments of the circle, and then gone off at a tangent into outer darkness, whilst he worked, and proved, and demonstrated round its entire periphery. His demonstrations and direct proofs were all new, and his indirect arguments nearly all new. Whenever he made use of anything already known, he most punctually acknowledged it. Of his demonstration in the way of injection I have already spoken; of his demonstration of the use of the valves in the veins, and his proof that they are similar in function to the arterial, a fact previously unsuspected (see p. 65 *l.c.*), the 13th chapter of the Treatise *De Motu* speaks with figures; of his indirect, but irrefragable argument, in the eighth chapter, from the quantity of blood thrown out by the heart at each pulsation, an argument which a mathematician such as Harriot, or Warner, might have hit upon, but, so far as I have found, did not, he speaks himself as being "adeo novum et inauditum ut verear ne habeam inimicos omnes homines;" and finally, the argument, which though only

indirect, every morphologist will allow to be not only most exquisite, but also most convincing, for the circulation in the adult warm-blooded animal, drawn from the relations held by the venæ cavæ to the efferent arteries in the embryo, and in all animals with but a single or an imperfectly divided ventricle, "unus duntaxat ventriculus vel quasi unus." and of which I would recommend every one who is not already acquainted with it, to gain a knowledge from the seventh chapter of the same book, was his, and his alone. With regard to all these points, with regard, that is, to the circulation as a whole; with regard to the actual demonstration and exhibition of it as opposed to mere guessing about it; with regard to all, or nearly all, sound reasoning as to any large portion of it, Harvey might have said with Lucretius,

"Avia Pieridum peragro loca nullius ante
Trita solo."

or in the words of a poet of another country, and a later age,

"We were the first that ever burst
Into that silent sea."

I do not wish to assert that Harvey was wholly independent of the works of his predecessors; he himself would, as his repeated references to them show, have been the very last man to make any such claim for himself; nor would I say that he owed nothing to the times,

"The spacious times of great Elizabeth,"

in which he lived. It is true, I think, in science, as it is also true in morals and politics, that the times make great men as much as great men make the times. Many metaphors have been used to express this latter half-truth. Such is the metaphor, an acquaintance with which I owe to Mr. Picton's new and striking work *The Mystery of Matter*, p. 265, used by St. Augustine, in which great men are compared to great mountains, dwelling apart in loneliness, and sending floods of blessings down upon the little hills and plains at their feet. Such, again, is the metaphor used by Wordsworth in apostrophising Milton:

"Thy soul was like a star, and dwelt apart."

Such is the metaphor used by Sir Coutts Lindsay, in his poem on the "Black Prince," where a hero

"Stands like a beacon, throwing light far out
Over the rippling tides of centuries."

Now all these metaphors strive, and profess to express, but half a truth, and they are imperfect even for this imperfect purpose, as they are borrowed from inorganic nature and the arts, and are unfit to be used as illustrations of the complexities of life and thought. I would venture to suggest a metaphor which has struck me, during this investigation, as being more appropriate and close-fitting, even if less beautiful, than those which I have quoted. A group of horsemen are attempting to cross an arm of the sea, up which the tide has been running, and obscuring the ridge, or spit of sand, by which it is fordable. They form themselves into a line, and advance slowly: rider after rider flounders off into deep water, and, if wise, retires towards the rear of the cavalcade of his companions, who still feel and advance upon the bottom beneath them. The line by degrees narrows into a column, and the column, after a longer interval, narrows into a single file. To the foremost horseman courage is necessary, as imagination is to the discoverer, and, impelled by this feeling, he may put a wide interval between himself and his companions, and reaching the opposite bank long before them, may have leisure to look down upon them, may be looked up to by them and by the rest of the world, whilst for some time in solitary occupation of that vantage ground. Such I conceive to be a fair representation, in the way of metaphor, the best and shortest way, perhaps, of representing such complex relations, of the relations held by Harvey, and indeed by most, or all discoverers, to their contemporaries, to their compeers, and to the conditions whereby they are surrounded.

It may be expected, perhaps, that, coming from Oxford, and having been recently elected a Fellow of the College—the wardenship of which Harvey held for something more than a year (April 1645-1646, midsummer)—I should have made search for whatever records there may be left of him unpublished in Oxford, and especially in Merton College. After diligent search, I have to report that there is but little to be learned of Harvey's history from any unpublished document which I have been able to find in Oxford. The Merton College Register gives an account of his election, from which it appears that, having been nominated by a majority of the Fellows, of whom the distinguished John Greaves was one, to King Charles I, who exercised the functions of visitor after the execution of Archbishop Laud, he was duly elected on receipt of the king's letter, after a dispute, of which it is needless to give an account. A couple of days after his admission to the office, on April 11th, 1645, Harvey summoned the Fellows into the hall and made a speech to them, to the effect that it was likely enough that some of his predecessors had sought the office of Warden to enrich themselves therefrom, but that his intentions were quite of another

kind, wishing as he did to increase the wealth and prosperity of the College. (I would here remark that it was well, perhaps, for the College of Physicians that Harvey was, by the success of the Parliament, forced to vacate the office of Warden, otherwise he would, no doubt, have kept his word, and Merton College would have gained what the College of Physicians, or some others of his legatees, would have lost.) He finished his address to the assembled Fellows with an earnest appeal to them to cherish that mutual concord and amity amongst themselves which recent occurrences, we may suppose, had tended to weaken. In the other pages of the Register for the period between April 1645 and the midsummer of 1646, I find the name of Charles Scarborough, the protégé of Harvey, and afterwards frequently an office-bearer in this College; but there is little or nothing of special interest to us in the rest of the record beyond the fact, that Harvey appears to have attended the College meetings and so to have discharged his duties, amongst which the providing for the contingency of a siege and famine was one. Dr. George Paget has put on record, as has also Mr. Pettigrew, the fact that Harvey's signature is to be found in the *Liber Computorum* of Merton. The College Register, however, is not so enriched, as I can state upon the authority of Mr. E. Maude Thompson, who compared the pages relating to Harvey's wardenship with the autograph MS. in the British Museum, when I took the Register up to London for that purpose.

Of Harvey's, as of Berkeley's sojourn in Oxford, we know little; little, indeed, has been recorded, with the exception of the somewhat uncertain gossip of the gossiping Aubrey. But what we do know of the place during those years which elapsed between the battle of Edgehill and 1646, makes us certain that scientific, and, indeed, any other work, must have been carried on in it under great disadvantages. We read of the plague, and of the "morbis campestris", described by a former Harveian orator and Linacre lecturer as desolating the town and driving people out of residence. It was, besides, a centre for military operations; and military life has been shown, by the experience of all ages (though this experience appears to have been lost upon the carelessness and ignorance of this), to be out of harmony with the habits of men, old as was Harvey then, young as our undergraduates are now, who are or who ought to be devoted to study. Whatever else of Aubrey's tales of Harvey I may disbelieve, I can believe that the words addressed to Charles Scarborough, "Prithee leave off thy gunning and stay here", were his.

If, however, we wish to have a real and truthful picture and image of Harvey before us, we must do by him as we have to do by Shakespeare, by Aristotle, by Butler, and several other great writers: we must lay our minds alongside of his, as it is revealed to us in his works. It is only the writings of great men which will bear or repay such treatment: no commentary nor any biography can give us the real and vivid sensation of having the men before us which we get from a perusal and reperusal of their books. Having used for this purpose what Mr. Tom Taylor has recently spoken of as "the invaluable three hours before breakfast", I have come to persuade myself that I have obtained something like a trustworthy idea of what Harvey really was. Previously, however, to doing this, I gave Christian burial to much of what Aubrey has left on record about him, feeling more and more strongly as I grew better acquainted with Harvey, that—

"These were slanders: never yet
Was noble man but made ignoble talk."

I will speak first of his scientific character, though it may seem strange to speak of scientific character, as character implies, perhaps, a moral element; and science, so far as it is really science, and based exclusively upon sound reasoning, has no moral element in it; reasoning, so long as it is sound, being of one kind always, and devoid, therefore, of all distinctive or personal factors. Still, the times in which a man lives, even if we do not regard them as making up some considerable part of the man, justify us at any rate in adding something to our quantitative estimate of him if he be seen to have been superior to the disadvantages of an unfavourable, or to have attained just results without the help of a favourable, environment. I do not forget that Harvey was but eighteen years junior to Bacon,

"Whom a wise king and Nature chose
Lord Chancellor of both their laws."

But neither do I forget that the *Novum Organon* was published in 1620, subsequently to the discovery and actual demonstration of the circulation (see *Dedicatio* to the treatise *De Motu Cordis*), if not to the publication of the *Treatise on the Motion of the Heart*; and that the Royal Society, with its motto, "Nullius in verba", was a foundation of a much later date; and consequently, I think, we may feel justified in saying that, so far as the purely scientific factor of a man's nature can be said to have any distinctive or personal character at all, independence, or robustness, or manliness, whichever word we may

like to choose, as shown in superiority to mere authority and the weight of great names, was a distinctive character of Harvey as a man of science. With Riolanus in full vigour, and Van der Linden growing towards maturity, as champions of antiquity, it required not a little manliness to assert, "contra receptas vias per tot sæcula annorum ab innumeris iisque clarissimis doctissimisque viris" (Riolanus is often thus spoken of), "tritam atque illustratam" (*Dedicatio*, p. 5), the claims of simple Nature "quæ nihil antiquius majorisve auctoritatis" (*Epistola Secunda ad Riolanum*, p. 123). This element of real manliness shows itself again, I think, in Harvey's power of abstaining from suggesting a rationale of what he felt he did not understand; as, for example, in what is known (out of England, at least) as the "problem of Harvey", (see *De Partu*, p. 549)—a problem which, I think, could not have been answered till the "works and days" of Bernard; and in the cases of several other problems instanced by himself (p. 132, *Epistola Secunda ad Riolanum*), and hidden then, to use his own metaphor (p. 630, *Epistola Prima ad Horstium*), in the well of Democritus.

For the culture which Harvey had bestowed upon his literary faculties, we have better evidence than Aubrey's, better even than that of two more trustworthy witnesses than Aubrey—Bishop Pearson, to wit, and Sir William Temple: we have the evidence of his own writings as to his familiarity with one of the greatest writers of antiquity. Bishop Pearson, as Dr. George Paget has reminded us (see p. 15 of his *Notice of an unpublished Manuscript of Harvey*, 1850), and Aubrey (see p. 32 of *Life* by Dr. Willis, prefixed to the Sydenham Society edition of his *Works*, 1847), have told us of Harvey's high appreciation of Aristotle's writings; but in his own writings he refers to the Stagite more frequently, I think, than to any other individual. And, as regards Virgil (the Latin author whom probably, if but one Latin author's works could be saved from destruction, most men would choose to be that one, as Aristotle's works would be the similarly to be chosen Greek), Sir William Temple (*Miscellanies*, Part II, On Poetry, p. 314) has told us that "the famous Doctor Harvey, when he was reading Virgil, would sometimes throw him down upon the table and say he had a devil." It was a similar spirit which dwelt in Sir Philip Sidney, who never heard the famous ballad of Percy and Douglas without feeling his "heart moved more than with a trumpet". It is but a small matter to vindicate for our great discoverer claims to a familiarity with Greek; still any one who will look at such passages as the one in the *Exercitatio De Partu*, p. 553, where he speaks of the mischief done by meddling midwives, or other passages (pp. 116, 129, and 133, *Epistola Secunda ad Riolanum*; p. 613, *Ep. ad Slagelium*), will see, I think, that he had Greek in abundance at his command, and used it just when it helped him to express his thoughts more clearly and concisely than any other words at hand at the moment. He used it, in fact, like a man of sense and real learning, when the use of it would save him time or trouble—two things, of one of which he had all too little, whilst of the other he had all too much for his and our good. Let me add that, in the one authentic MS. which we now possess of Harvey's (No. 486, *Sloane Coll.*, British Museum), a MS. never intended for publication, and consisting but of rough notes for lectures to be delivered, I find that he employs Greek words in several places (e.g., p. 656 and p. 87).

His style has been spoken of as being more or less inelegant and unadorned; and the Latin tongue, which he used, lends itself but grudgingly and awkwardly to the purposes of science, being strictly a political language, habituated and framed to describe the march of the legions, the disputes of the forum, or the denunciations of the moralist. Still Harvey's style has always an impressiveness and solidity of its own; and sometimes, as, for example, in the glorious eighth chapter, *De Motu Cordis*, it rises into real eloquence where a great occasion justifies the use of repetitions, of antitheses, and abundance of metaphors. But, though the use of stilted phraseology was common enough among Harvey's contemporaries, and though his imagination was vivid and active enough, his study (for to this I would ascribe it) of the excellent models mentioned saved him, as such a study can save a man, from falling into the use of false or extravagant imagery.

Harvey, besides the advantages accruing from acquaintance with the great minds of the past, enjoyed also those which may be gotten from familiar intercourse with great contemporary minds. These advantages constitute in themselves a second education; and they were at Harvey's command for a period of more than forty years, during which he was prominently before the public. It is recorded of John Greaves (see *Life*, by T. Smith, 1699, p. 44), the once celebrated astronomer and antiquary, and a man whom, as a Fellow of Merton, we can well believe, though I know not that we can prove, to have done more than give a silent vote for Harvey when he was chosen Warden, that he was one of the friends of Harvey. His well known connexion with the Court must have constantly brought him into relation with the states-

men of those stormy times. His legacy to his "good friend Mr. Tho. Hobbs, to buy something to keepe in remembrance" of him, is touching, even if trifling, evidence in the same direction.

Travel, which even in our day confers a kind of culture peculiar to itself, must have been doubly necessary in days when, in the absence of the steamship and the railway, an insular position must have kept its inhabitants very nearly as inaccessible to "the thoughts that move mankind", as it had happily kept them to the Armada. Sir George Ent's interesting and entirely trustworthy account of the interview with Harvey which resulted in the publication of the treatise *De Generatione*, will show any one who will consult it that Harvey had drawn from his opportunities an insight into what might be expected, and what since his time to some extent has been realised, from enlarged opportunities of observing not only "men, manners, cities, climates, governments," but also the wonderful facts of the unequal allotment, in the various parts of the earth, of useful inorganic products, and of that mystery of mysteries, the distribution of organic life. (See *Works*, ed. 1766, p. 162; ed. Dr. Willis, p. 146.)

Having been thus fortunate in securing for himself all the advantages which the various educational agencies of his age would furnish, he added on to all that they had effected, or could effect, the yet more elevating and glorious discipline of long sustained and finally successful labour. He attained a position of mental dignity in which he could feel neither unduly anxious for the applause of his compeers, nor unduly moved by the reproaches and misrepresentations of his enemies (see *Dedicatio*, p. 164; *Epistola Secunda ad Riolanum*, p. 109); the impact of these opposite forces resulting, however, in much benefit for mankind, as without them Harvey might, it is likely enough, have delayed the publication of his works indefinitely. Being self-contained without being self-conscious, he was yet, like all men of real genius, large-hearted and sympathetic. Whilst he could, in a spirit of perhaps a little over-strained charity, make excuses (see p. 614, *Epistola ad Slegelium*) for the irrepressible and pestilent Riolanus, he would, we may be also sure, have felt an emotion of gratitude upon each of the many instances in which his own true-hearted adherents, Sir George Ent and other Fellows of this College, fought his battles for him, and vindicated for him successfully and during his own lifetime his own irrefragable claims. And I can believe that, answering to the character of the dignified and stately man so well drawn by the author whom he often quotes, and considering himself worthy of great respect, being worthy of it, he would not have looked disapprovingly upon our attempt to show him respect by the Tercentenary Memorial to which you, sir, have lent the sanction of your name. I can further conceive of Harvey as entirely sympathising with the men who have now in their hands the torch of knowledge which once passed through his, of applauding without any shadow of jealousy the work of the many workers who in these days are going over the ground trodden by him under far less favourable circumstances and with far less assistance from ancillary sciences and their various and still novel instruments and methods. The same spirit which caused him repeatedly to say (as, for example, to Sir George Ent, p. 163; to Horstius, p. 630), "hæc cum mirâ, ut solet, promptitudine effundens," that he doubted not that much now hidden in darkness would be brought to light by the indefatigable industry of the coming age; the same spirit which dictated the provision in his will bidding "his lo. friend Mr. Doctor Ent" sell certain of his "books, papers, or rare collections," and "with the money buy better," would have caused him, could he have been amongst us, to point out, as a matter for congratulation, in how many directions his discoveries had been extended and added to, and how well replaced had been the many works the loss of which had been so "crucifying" to him.

There was not in Harvey's mind that defect in the way of a deficiency of interest in theological questions which constitutes in the minds of some eminent scientific, and some eminent literary, men such a lamentable void. He has, on the contrary, in several places taken pains to state his views upon this highest of subjects. To one of these passages (from the work *De Generatione Exercit. Quinquagesima*, p. 385, ed. 1766; p. 370, ed. Dr. Willis), as Mr. E. B. Tylor has pointed out to me, Professor His of Leipzig, a worker whom Harvey would have hailed as a colleague, has referred to it in one of his always excellent papers, published in the *Archiv für Anthropologie*, Bd. iv, 1870, p. 220, on "Die Theorien der geschlechtlichen Zeugung". It is just in the investigation of the problems indicated in these last words that, as has often been remarked, the question of the existence of other than purely material forces presses itself most closely upon the mind; and hence, perhaps, the repetition by Harvey of his views regarding it, more than once or even twice, in his treatise just referred to (see *Exercit.* 49, p. 730; *Ex.* 50, p. 385; *Ex.* 54, p. 419-420). These statements are all to the same purpose. I have chosen one of them—the last one of the

three just cited (not the one quoted by Professor His)—to repeat here, because, besides its philosophical and other interest, it has some literary claims upon our attention, it being not quite impossible, considering its line of thought and arrangement of words, that Pope, who borrowed on all sides, and made acknowledgments on none, may have had it before him when he composed his Universal Prayer. It runs thus:

"Nempe agnoscimus Deum, Creatorem summum atque omnipotentem, in cunctorum animalium fabricâ ubique præsentem esse, et in operibus suis quasi digito monstrari; Cujus in procreatione pulli instrumenta sint gallus et gallina. Constat quippe in generatione pulli ex ovo omnia singulari providentiâ, Sapientiâ divinâ, artificioque admirabili et incomprehensibili exstructa ac efformata esse. Nec cuiquam sane hæc attributa conveniunt, nisi omnipotenti rerum principio; quocunque demum nomina id ipsum appellare libuerit: sive mentem divinam cum Aristotele; sive cum Platone Animam mundi; aut cum aliis Naturam naturantem; vel cum Ethnicis Saturnum aut Jovem; vel potius, ut nos decet, Creatorem ac patrem omnium quæ in coelis et terris; a quo animalia eorumque origines dependent, cujusque nutu sive effato fiunt et generantur omnia." (From Harvey's *De Generatione Animalium*, Ex. 54, p. 419, ed. 1766; p. 402, ed. Willis.)

I have detained you far too long; but, feeling that my praise of Harvey has been all too feeble, I am anxious, in ending, to use words in his honour the singular appropriateness of which is only less remarkable than their beauty and force.

"Remember all

He spoke among you, and the man who spoke;
Who never sold the truth to serve the hour,
Nor paltered with Eternal God for power;
Who let the turoid streams of rumour flow
Thro' either babbling world of high and low;
Whose life was work, whose language rife
With rugged maxims hewn from life;
Who never spoke against a foe.

Whatever record leap to light,
He never shall be shamed."

CLINICAL MEMORANDA.

DIARRHŒA IN TEETHING CHILDREN.

In the JOURNAL for June 28, is an extract from a clinical lecture, by Dr. Francis Minot, of Boston, on the treatment of diarrhœa in teething children. Dr. Minot recommends a chalk mixture, containing tincture of kino, with the addition, if necessary, of tincture of opium, in one-drop doses. Such treatment is, no doubt, often very successful, but we frequently find in practice, that unless supplemented by warmth to the abdomen, it fails to produce the desired result.

Teething infants are excessively sensitive to slight changes of temperature, and the protection of the body from impressions of cold should be the first precaution to be adopted in all cases of abdominal derangement in children. It has long been my practice in such cases to recommend the application to the belly of a flannel binder. The binder must be applied low down on the abdomen, and be firmly wrapped round the hips and buttocks. It should be broad enough to cover the body as high as the waist. If properly applied, it retains its position during any ordinary movements of the child, and does not slip up so as to leave the lower part of the abdomen exposed. This, with a dose of castor oil to remove irritating matters from the bowels, will cure at once almost all cases of acute functional diarrhœa in children. Even when the diarrhœa is chronic, the binder is still of very great service, and I have frequently seen cases of apparently obstinate diarrhœa yield readily to the use of this very simple appliance.

There is one other point in the treatment of children's diarrhœa which it is important to be aware of. In all cases where the derangement is obstinate, and the child be not at the breast, milk should for a day or two be excluded from the diet. Its place can be supplied by whey, veal broth, and barley water, in equal proportions; or Mellin's patent extract, dissolved in whey, or barley water.

Few cases will be found to resist this treatment, and if the above precautions be adopted, the kind of astringent to be employed is a matter of very secondary consideration.

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