**The Harveian oration for 1874 / by Charles West.**

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1874.

LONDON: PRINTED BY
SPOTTISWOODE AND CO., NEW-STREET SQUARE
AND PARLIAMENT STREET

HARVEY AND HIS TIMES.

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THE

# HARVEIAN ORATION

FOR

# 1874.

BY

CHARLES WEST, M.D.

FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS.

LONDON:
LONGMANS, GREEN, AND CO.
1874.

TO

SIR GEORGE BURROWS, BART., M.D., F.R.S., D.C.L.

PRESIDENT OF THE

ROYAL COLLEGE OF PHYSICIANS OF LONDON;

PHYSICIAN IN ORDINARY TO THE QUEEN;

LATE SENIOR PHYSICIAN TO SAINT BARTHOLOMEW'S HOSPITAL;

ETC.

WHO NEVER STOOPED TO WIN FAVOUR,

NOR SWERVED FROM RIGHT TO GAIN APPLAUSE,

MY MASTER AND MY FRIEND,

I DEDICATE THIS ORATION.

CHARLES WEST.

# THE HARVEIAN ORATION

1874.

Mr. President, and Fellows of the College of Physicians:—Few things are more difficult than to preserve alive for many years the spirit of an anniversary celebration. The memory of even a national deliverance grows faint; the horrors of war, the contest with the oppressor, are alike forgotten; a long peace effaces the recollection of the struggle to attain it, and of the hero by whom it was won.

But still more quickly fades the remembrance of private benefactors. How quickly we all have realised who in one of our cathedrals, or of our college chapels have listened on some Sunday or Festival Day to the Bidding Prayer, and have heard mentioned with thanks to Almighty God the names of men and women gone ages since to their last home, of whom all we know, and almost all that we can learn is, that 'they

rest from their labours and their works do follow them.'

There is, however, something peculiar and different from most in this celebration. It was instituted by the very man whom we commemorate: instituted not for his own glory, but 'to make mention of the benefactors of this College, and to encourage its members to search out the secrets of nature by way of experiment.'[1]

[1] The very words of Harvey in the deed by which he provides for this Oration are worth quotation, so well do they express the genial, loving character of the man.

After ordering a general feast to be kept within the College once every year for such Fellows as shall please to come, he adds:

'And on the day when such feast shall be kept, some one person (Member of the said College), to be from time to time appointed by the President, shall make an Oration publicly in the said College, wherein shall be a commemoration of all the benefactors of the said College by name, and what in particular they have done for the benefit of the College; with an exhortation to others to imitate those benefactors, and to contribute their endeavours for the advancement of the Society according to the example of those benefactors, and with an exhortation to the Fellows and Members of the said College, to search and study out the secrets of nature by way of experiment, and also for the honour of the profession to continue mutual love and affection amongst themselves, without which neither the

A compendious theme this, and one making large demands upon the head and heart of him who would aspire to treat it.

When your commands, Sir, were first laid upon me to undertake this most honourable, most arduous office, I studied, as a preparation for its accomplishment, all the Harveian Orations that I could meet with. But the study yielded me scant comfort. I found that the first Harveian Orator had incurred grave displeasure for having indulged in unseemly criticisms on the control of the army, and the government of the country at a time when Oliver Cromwell was Lord Protector.[1] There was much need doubtless that the performance of so indiscreet a person should be submitted to the censors for

dignity of the College can be preserved, nor yet particular men receive the benefit of their admission into the College which they might expect; ever remembering that *concordiâ res parvæ crescunt, discordiâ magnæ dilabuntur.*'

I am indebted for this extract from the deed to my kind friend and master, Dr. Farre, the Treasurer of the College.

[1] 'Quod acrius quam decuit in rem militarem declamasset; adeoque præsens Reipublicæ regimen collutulatum esset.'—College Annals, as quoted by Dr. Munk in Roll of Royal College of Physicians, vol. i. p. 226.

revision,[1] and a rule was then adopted that thereafter no Oration should be given in public until at least a month beforehand it had been submitted to and approved by the President and Censors.

I do not know how long it is since this rule was allowed to fall into disuse. Its existence, however, proves how responsible a post that was felt to be which I now have the honour to occupy, and I could wish, for my own sake, that instead of having simply to throw myself on the indulgence of my hearers, I could plead that my poor attempt to do justice to my theme had already been submitted to the President and Censors, and had been stamped by their authority as fit to pass current.

I said, Sir, that I have looked with care at almost all the Orations which have been given on this occasion. Need I add that I have not done so with the idle and unworthy purpose of decking out my work with the genius, or the learning, or the grace of my predecessors, for the unhandy patchwork would at once be discovered, and when Meade and Arbuthnot and

[1] 'Ut eadem denuo perlustraretur.'

Akenside, and in more recent days, Latham and Hawkins and Rolleston, had reclaimed their own, I should stand before you like the painted daw in the fable. I sought in the Orations, and especially in the earlier ones, for something that might have enabled me to set the man Harvey before you, 'in his habit as he lived;' for while but few are gifted with any measure of his deep insight, or can follow even at a distance the track of his genius, it would profit all of us to learn the lesson of his patriotism, his loyalty, his open-handed bounty, his forgiveness of injury and detraction, his deep religious feeling.

But my search has yielded little fruit, partly, I suppose, from Harvey's own character. The man who needed the cannon-shot at Edge Hill[1] to arouse him from his studies and to make him remove for the sake of the Princes committed to his care to a safer place, lived too entirely in his own pursuits to take much heed of life beyond them. It was with him much as it has

[1] This, and many other familiar traits in Harvey's life, we owe to Aubrey. 'Letters by Eminent Persons, and Lives of Eminent Men,' vol. ii. part ii. 8vo., London, 1813. 'Life of Dr. W. Harvey,' pp. 376–386.

been with many of our greatest artists, to whom the external world was but suggestive of the inner world in which they lived; to whom it appeared, not as it shows itself to others, but as it was translatable into their own language, or as they could clothe it in their own expression. Harvey had travelled much, and the few descriptive touches that we meet with in his writings are most picturesque and life-like. But they are brought forward merely to illustrate some point in his scientific researches. His account of the Bass Rock[1] and of the countless birds that inhabit it, 'more numerous than the stars that appear on the unclouded moonless sky,' is so true to nature that it at once recalls to all who were so fortunate as to see it Graham's picture in the exhibition of our Royal Academy three years ago. And yet this minuteness of observation, this beauty of description, are but subordinate to a detail of the process by which the hard shell is formed round the egg. And so, a few paragraphs further on, we find ourselves on the tiptoe of expectation when

[1] 'Harvæi Opera'—College edition, 4to. 1766, p. 221; and Willis's translation for [Sydenham Society, 8vo., London, 1847, p. 208.

we come to a sentence which begins, 'When I was at Venice in former years;' but as we read on, in hopes to find some record of the impression left on Harvey's mind by that wonderful city, it turns out that the place is mentioned merely because it was there that Aromatari,[1] a learned physician, showed him a specimen of unusually exuberant vegetable growth as illustrative of the influence of soft air, mild climate, and bright sky on the development of plants.

Harvey's whole mind, almost his whole heart, seem to have been devoted to his favourite pursuits. He did not care for wealth, he did not care for fame; married, but childless, his first affections seem to have been set on the places where he had studied or had taught. Aubrey tells us (I am not quite sure whether correctly) that in spite of his brother's entreaties he persisted in giving the stone house where he and all his brothers were born to Caius College, Cambridge. His diploma of Doctor of Medicine of Padua, his earliest trophy,

[1] Opera, p. 224; Willis, p. 211. Aromatari was a contemporary of Harvey, and like him a graduate of Padua, and practised with great distinction at Venice. See his life in 'Biographie Médicale,' 8vo., Paris, 1820.

found its way, I know not how, to the King's School at Canterbury, which he entered as a child of ten, and left as a lad of fifteen ;[1] and he bequeathed to the College of Physicians such purely personal memorials as 'my best Persian long carpet and my blue satin embroidered cushion.[2]

For the last twenty years of his life Harvey had no settled home of his own, but lived about at his brother Eliab's houses, either in town or country ; and the gossip Aubrey, a sort of seventeenth century Boswell (but wanting Boswell's reverence for what was higher and nobler than himself), tells us how Harvey 'sat for hours on the leads of Cockaine House, where he was used to contemplate ; or at Coombe, in Surrey, where he had caves made in the earth in which in summer he delighted to meditate.'

'His heart and brain moved there, his feet staid here.'

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[1] This diploma was afterwards presented to the College of Physicians, in whose archives it is preserved, by Dr. Osmond Beauvoir, Head-Master of the King's School, Canterbury, through Sir W. Browne, President of the College, in 1764, as is set forth in a Latin memorandum by Sir W. Browne himself, written inside the cover of the diploma.

[2] See copy of Will in Willis's 'Harvey,' p. lxxxix.

They staid with all love and kindness, and moved up and down the paths of this work-a-day world as if they were quite unused to higher regions. Harvey seems, indeed, to have cared much for home friendships—for the love of his brothers, sisters, nephews, and nieces, to all of whom he bequeathed some remembrance, thoughtfully selected according to what would be of most service or give most pleasure. But nothing in his will is so touching as his reference to a certain Will. Foulkes, whether related to him or not does not appear, who seems to have been a feeble-witted person, and under the care of one of Harvey's nieces. He left to her 'all the linen, household stuff, and furniture at Coome, near Croydon, for the use of Will. Foulkes.' Further on he assigns a stated yearly sum towards his maintenance, and then in the last sentence, as if he feared lest something in spite of all his care might yet befall one so helpless, he provides for his custody in the event of the death of his niece, Mary Pratt. This is the substance of his will; but there are bequests to the poor of Folkestone, to the poor of Christ's Hospital, to the poor children of his cousin; and then 'one hundred pounds among

other my poorest kindred, to be distributed at the appointment of my executors.' Then there come in touches of kind remembrance of old friends. 'My little silver instruments of surgery to Dr. Scarborough, and my velvet gown. Five pounds to my loving friend Dr. Ent, to buy him a ring to keep or wear in remembrance of me;' and in a codicil he adds, 'ten pounds to my good friend Mr. Thos. Hobbes, to buy something to keep in remembrance of me.' It is strange to find evidence of close intimacy between two men so widely different as Wm. Harvey and Thomas Hobbes. I dare say their common acquaintance with Bacon brought them in contact, and Harvey's genial temper would attach him to a man who 'was well-beloved for his pleasant facetiousness and suavity.'[1]

One matter Harvey refers to in his will which might excusably enough have moved him to complaint: his library plundered, his manuscripts destroyed a few years before by the Parliamentary soldiers when they rifled his lodging at Whitehall. But he only desires his loving friends, Dr. Scarborough and Dr. Ent,

[1] Aubrey. Op. cit., vol. ii. part. ii. p. 619.

'to look over those scattered remains of my poor library, and whatever books, papers, or rare collections they shall think fit to present to the College, and the rest to be sold, and with the money buy better.' To his published writings he makes no reference; no word occurs about his discoveries, no thought seems given to his fame, nor care expressed for its preservation, for he begins his will, 'Imprimis. I do most humbly render my soul to him that gave it, and to my blessed Lord and Saviour Christ Jesus;' and besides that where is the room for thought of earthly fame?

Little that is authentic can be added to this sketch of Harvey by his own hand. Of his outward form the portrait and the bust which we possess in this College give no doubt a correct resemblance. I doubt, however, whether the grave anxious expression which they convey was by any means habitual to him. Still, with their help, we may, perhaps, set before us the little dark-complexioned man, with keen black eyes and curling hair, which age changed from black to snowy white; rapid in utterance, hasty in manner, choleric in his younger days, and used then in discourse with

anyone to play unconsciously with the handle of a small dagger which he wore.[1]

For the rest, unwearied in his pursuit of knowledge, most rapid in its acquisition, so that his diploma of Doctor of Medicine, which he obtained at Padua at the early age of twenty-four, is not worded in the common language of those documents, laudatory of course, though they always are, but well-nigh exhausts the Latin language of its superlatives, and speaks of how all listened with intensest pleasure to his clear and most appropriate answers, and how most astonishingly and most excellently 'mirifice et excellentissime' he had borne himself.

The knowledge thus attained he was always as ready to impart as he was eager to increase; while nothing tried him half so much as the loss of time spent in defending his discoveries or in answering captious critics, to whom he yet was always ready to give credit for candour and a love of truth like his own. He seems to have found his chief relaxation when alone in Virgil, whose mediæval character, half-wizard, half-dim unconscious prophet of a coming Chris-

[1] Aubrey. Op. cit., p. 382.

tianity, lasted down almost to modern times. 'He has a devil,' Harvey was more than once heard to say as he flung the book from him to the other side of the room, and turned again to the researches from which the poet and enchanter had wiled him too long away. But in spite of all that science on the one hand, or imagination on the other, could do to occupy his mind and fill his heart, his sympathy and love for his fellow-men were ever keen and ever active. He instituted a quarterly meeting of the Fellows of this College, who were then to dine together, and thus to maintain brotherly love towards each other; and the year before his death, when he presented to the College the title-deeds of the estate which we still possess, he entertained all the Fellows at a banquet, while one of the objects specially set forth in the deed by which he founded this our anniversary was the exhortation which it is my duty to-day to make to all of you, my colleagues, that 'we should continue mutual love and affection among ourselves.'

Such was the man, such were his pursuits; loving knowledge for its own sake, loving it too not in pride of intellect, but in humility of

heart, believing that it, like every good and perfect gift, cometh down from above from the Father of lights; and his longing for it seems to have become stronger as he grew older.

> 'And this grey spirit yearning in desire
> To follow knowledge like a sinking star,
> Beyond the utmost bound of human thought,'

did it in the full conviction that here we know but in part, that we do but see as through a glass darkly; but that there, in the full effulgence of God's own light, we shall see all clearly, and that there all secrets shall be revealed.

Such then was Harvey; so far at least as scanty materials allow us to sketch the outline, and as my unskilled pencil may enable me to fill in the details of the portrait. It will not be without interest to enquire in the midst of what surroundings he grew up; for though his was not the character to be shaped by outward circumstances, still no one can be altogether independent of their influence, and least of all in times such as were those in which Harvey lived.

The earliest lesson that he learned, next to

that tender affection which must have been the daily teaching of a home where a mother like his bore sway, was that loyalty learnt in childhood, called into practice when grey hairs had come and old age was close at hand. Never could he forget those two cloudless July days, just before he went to the King's School at Canterbury, when all Folkestone gathered on the cliffs to watch the contest between the Armada of Spain and the few ships which then represented the navy of England. On the one side religion was said to be engaged (but never was she further than from the blessings and the cursings uttered then in her name), on the other were ranged all who were moved by love of country, love of freedom, love of all that makes life worth the having, just as they had been on a wider field, upon the Southern Sea, seventeen years before.[1] No Englishman, whatever his creed, hesitated then, as none would hesitate now, in determining the side on which he would be found contending; and the names of Howard, of Southwell, and of Montagu gave the verdict

[1] The battle of Lepanto, fought on Rosary Sunday, October 7, 1571.

which I am well assured none in the present nineteenth century would reverse.

Full of this teaching, Harvey went to Canterbury. He stayed at the King's School for five years, from childhood to youth, and left[1] at the age of fifteen, entering at Caius College on May 31, 1593. He took his degree of B.A. in 1597, and left the University; and I know of no record of who were his friends or what his pursuits during those four years. All that we can be sure of is that they were not years wasted, for he was well furnished for his future career when, on quitting Cambridge, he went immediately to Padua, attracted thither doubtless by the fame of its University as a school for those anatomical studies for which he had acquired a taste at college. The University of Padua became to Harvey a second mother, and

[1] The terms in which Harvey's admission at Caius College, Cambridge, 'in commeatum scholarium' is recorded, seeming to imply that he went thither with a scholarship from Canterbury, I addressed myself to my friends Dr. Paget, Regius Professor of Medicine at Cambridge, and Dr. Lochée of Canterbury, and as the result of their kind enquiries, I feel able to state confidently that Harvey entered college as a pensioner, and that he held no scholarship from Canterbury.

her kindly nurture developed in him that genius which has left the whole world his debtor. The hasty traveller, indeed, who stops for an hour or two on his way to Venice to take a hurried glance at the chapel of Giotto scarcely dreams as he treads the grass-grown streets of the deserted city,

'Where wasteful time debateth with decay,'

how large a space Padua has filled in the intellectual life of Europe.[1] And yet it was once

[1] With reference to the state of the universities of Europe in the middle ages and Renaissance period, see Meiner's 'Historische Vergleichung der Sitten des Mittelalters, &c.,' Hanover, 1793; 8vo. vol. ii., 2ter Abschnitt, pp. 403–534; Cibrario, 'Della Economia Politica del Medio Evo,' Torino, 1842, vol. ii. pp. 308–312; and references; Tiraboschi, 'Storia della Letteratura Italiana,' Milano, 1826, 8vo. iv. 61, v. 71, vi. 111, vii. 156, viii. 154; and the first three volumes of that storehouse of antiquarian knowledge, Monteil's 'Histoire des Français des divers États,' of which the most convenient edition is that of 1853, with its graceful biography by Jules Janin.

As to Padua in particular, the best authorities are the, unfortunately, incomplete work of F. M. Colle's, 'Storia dello Studio di Padova,' 4 vols. 4to. Padova, 1824, 1825, which ceases at the year 1405, when the territory passed to the Venetian States, just at the time, in short, when so trustworthy a guide would have been beyond all price; next, the various details in Tiraboschi; Op. cit. iv.

a university with 18,000 students; a true republic of letters, and a republic of most democratic kind. The Professors, originally elected by the students, were in Harvey's time still nominated by the University. The different faculties were independent of each other as far as their internal government was concerned, and the ecclesiastical censures which afterwards troubled the life of Galileo did not interfere with his functions as Professor at Padua. To encourage merit wherever found, two professors were appointed on every subject, the one a foreigner, the other a citizen of Venice. These professorships too, were not mere titles of honour, but in addition to the fees paid by the students, the different chairs were well endowed. Thus, in the year 1598,[1] about the time when

69, et seq., v. 93, vi. 116, vii. 160, viii. 55, &c.; Riccoboni, 'De Gymnasio Patavino,' libri vi. 4to. Patavii, 1598; Portenari, 'Della Felicità di Padova,' folio, Padova, 1623: see lib. vii. which treats of the University; and Facciolati, 'Fasti Gymnasii Patavini,' ab anno 1406, 2 vols. 4to. Patavii, 1757.

[1] Riccoboni. Op. cit. lib. vi. cap. xx. p. 147. In 1601, according to a folio broad-sheet, published at Padua, with an exquisitely engraved picture of the exterior and another of the interior of the hall of the University, with the title 'Nomina, Cognomina, loca, stipendia, &c.,

Harvey entered there, the annual stipend of the Professor of Practical Medicine was 1,000 florins,[1] a sum equal to nearly 500*l.* at the present day; and Fabricius himself, as Demonstrator of Anatomy, received 500 florins, or nearly 250*l.*, while as Professor of Anatomy and Surgery together he received more than double that sum. The number of students, indeed, had declined greatly in Harvey's time, as it had in all the old universities, whose most prosperous time preceded the invention of printing, the new learning and its new modes of communication. Instead of 18,000, there were at the end of the 16th century not above 1,500 students; and the quaint old traveller Coryat,[2] most unimaginative of men, but smitten with the plague of an insatiable curiosity which sent him wandering through Europe, to die at last in India, tells

professorum qui in Gymn. Patav. hoc anno profitentur.' The stipend of Fabricius is stated as 1,000 florins or 500*l.*

[1] It is, I suppose, by a mere typographical error that Daru, 'Histoire de Venise,' Paris, 1853, vol. vi. p. 195, professedly quoting Riccoboni, states the salary of the Professor of Practical Medicine at 3,000 florins. The salary was 1,000, and the highest of all was 1,680 florins to Pancirola, Professor of Civil Law.

[2] 'Crudities, &c.,' reprinted from edition of 1611, 8vo., London, 1781, vol. i. p. 193.

us of Padua, not eight years after Harvey left it: 'There is one special thing wanting in this city, which made me not a little wonder, namely, that frequency of people which I observed in the other Italian cities. For I saw so few people here that I think no city of all Italy, France, or Germany, no, nor of all Christendom, that countervaileth this in quantity, is less peopled.'

But in spite of diminished numbers, the old reputation of the place survived, and its old traditions lingered still about it. We do not forget that it was to Padua the Duke sent for one who could best plead for Antonio, though I fancy none of us regrets the mischance which, instead of the learned Bellario, sent 'the young doctor of Rome,' who baffled Shylock, and left to us Englishmen another Shakesperian legacy in Portia.

The old customs had not yet fallen into disuse in Harvey's time.[1] The medical session began on October 18, the day dedicated to St. Luke, the beloved physician, when all assem-

[1] See Statuta Almæ Universitatis Philosophorum et Medicorum, cognomento Artistarum Patavini Gymnasii. Patavii, 4to. 1607. See p. 77, *De Inchoatione Studii.*

bled in the church (the bishops and chief clergy being invited) to hear an oration by some doctor or other learned person in praise of the study of medicine; and to urge the scholars to its diligent pursuit; the whole assembly then heard mass, after which the Litany of the Holy Ghost was said; for in those days people held, in profession at least, to the belief 'If any of you lack wisdom, let him ask of God, that giveth to all men liberally and upbraideth not, and it shall be given him.'

To Harvey no doubt the great attraction of Padua was its anatomical school, which then presented opportunities for study greater than any other in Europe. The statutes of the University prescribed that twice during the academical session, which extended from St. Luke's Day to the Feast of the Assumption, on August 15,[1] the whole human body should be publicly dissected by the Professor of Anatomy. Nor were the means neglected to ensure the fulfilment of this regulation; for it was provided that, if no criminals were executed within the province of Padua, the University should have the power of

[1] Statuta, &c., p. 103. *Dies festi, et vacationum.*

claiming bodies from Venice, or elsewhere within the Venetian States.[1] Not seven years before Harvey came to Padua, the Venetian government had built there at its own cost a new anatomical theatre, and had placed over its entrance an inscription commemorating the liberality, as well as the genius of Professor Fabricius,[2] who had built the former theatre at his own expense. Between Fabricius, honoured by and adding honour to the dignity of a Knight of St. Mark, and Harvey, a fast friendship seems to have sprung up, or rather that loving relationship which is so beautiful between the youth scarce twenty and the old man of well-nigh seventy years.

Something of his open-handed liberality and of his indifference to wealth Harvey may have learned from the example of Fabricius, who contented himself with his stipend, and refused the large sums which his great reputation as a sur-

[1] Statuta, &c., p. 90. *De Anothomia singulis annis facienda.*

[2] See biography of Fabricius and his colleagues in the different volumes of the 'Biographie Médicale,' and also various incidental notices concerning them in Part iii. of Facciolati's 'Fasti,' &c.

geon placed at his command. When grateful patients forced their gifts on his acceptance, he with quaint humour arranged them all in one large room, and wrote upon the door 'Lucri neglecti Lucrum,' which I may perhaps be allowed to render, 'See what I get by saying No!'

The name of Fabricius is the first subscribed to Harvey's diploma. Next to it comes that of John Thomas Minadous, an accomplished and much-travelled man, the son and brother of physicians, and they of no mean repute. He passed seven years of his life in the East, and wrote a History of the War between the Sultan and the Shah, a matter then of much more concernment to Europe than at the present day. Next comes the name of Julius Casserius, a native of Piacenza, whom Fabricius took out of compassion as a poor boy to be his lackey. The lad showed parts; Fabricius taught and trained him. for the republic of letters was then no mere phrase; and so from valet he became pupil, from pupil, friend, then colleague of Fabricius, and last of all his successor in the professorial chair. Servitor, Sizar, Taberder—terms and conditions which we have now done away with

in our universities—brought then no sense of inferiority, for all felt equal in their citizenship in the commonwealth of learning. Casserius projected a large work on anatomy, illustrated with beautiful engravings, which the curious may still admire and the student still profit from. Death overtook him in the midst of his unfinished task, three years before his master passed away in advanced old age.

Let these suffice as samples of the men with whom Harvey was in daily intercourse. It would be easy enough, especially if one travelled beyond the somewhat narrow circle of those whose pursuits were exclusively connected with the profession of medicine, to swell the list of those remarkable alike for their genius and their culture, who were the inheritors of all that was most worth the possessing of that wonderful *renaissance*, that new birth of the world, out of which came alike the evil and the good of modern society.

The commencement of that epoch was like the thawing of some mighty frost-bound stream. Northern travellers tell us how with the approach of spring the long silence of winter is disturbed by strange sounds, loud cracking,

or reports like those of thunder or of discharges of artillery, which tell how the masses of solid ice are giving way beneath the influence of the returning warmth. And next, for the simile still holds good, the swollen river overflows its banks, and terrifies by strange portents of evil the inhabitants, unable to realise the fertility which the receding waters will leave behind them.

'Terruit gentes, grave ne rediret
Sæculum Pyrrhæ, nova monstra questæ;
Omne cum Proteus pecus egit altos
Visere montes,'

says Horace; and much, I think, is to be said in behalf of those who, like 'Gravissimus et Excellentissimus Dominus Ortuinus Gratius,' shrank from the new learning and its results.[1] The laugh was with Ulrich von Hütten: his own life and death were not so edifying as to make one cast in one's lot unhesitatingly with him and his compeers.

By degrees the disturbances which ushered

[1] The first edition of the 'Epistolæ Obscurorum Virorum' appeared in 1515. See p. xxix. of preface to Rotermund's excellent edition of the 'Epistolæ,' published at Hanover, in 1830.

in this time subsided, and as the waters assuaged the soil which had seemed before so barren began to show a wonderful fertility. The plants, indeed, were not all like those trees which the Apostle saw in vision, each bearing its wholesome fruit, nor were the leaves of all for the healing of the nations; but, far from it, the primæval curse remained, and thorns and thistles grew too in rank luxuriance.

But, look at it with whatever eyes we may, it must be admitted that the time was one of development of mind such as the modern world had not known before; and this development was very general, not limited, as in the middle ages, to a few who towered above the rest, not alone from their own greatness, but in part at least from the littleness of those around. The last half of the fifteenth century was a time of preparation, in which men were learning the use of the new weapons to be wielded in the storm and strife of the ensuing fifty years. The peace of Augsburg, in 1555, fixed the limits beyond which Protestantism has never passed, and the Council of Trent moulded the Roman Catholic Church into the form which it has ever since retained. The position of the two

religions has since remained (with some notable exceptions indeed) one of armed truce; and it was during the first hundred years after the commencement of this state of things that the greatest intellectual activity which has ever shown itself in the world's history in matters not purely theological prevailed. I might add, it was during this time that the greatest intellects who in modern times ever enriched science or adorned literature arose and flourished. A century which began with Bacon and ended with Newton, which began with Shakespeare and ended with Milton (not to travel beyond the borders of our own island), forms an epoch in mental progress which none can excel, with which few can compare.

It was under the influences of this time that Harvey grew to intellectual manhood. There had, as we shall see presently, been labourers at work for nearly fifty years unconsciously breaking up the ground for him to till, fitting it for the culture of the skilled husbandman who came just at the right time to turn their otherwise barren toil to good account:

'My heritage, how lordly rich and fair,
Time is my great seed-field; to time I'm heir,'

says the poet; consummate in wisdom, pagan in creed, born by a strange anachronism in Christian times.

And Harvey might well have rejoiced in this his heritage, whose value it yet needed genius like his to turn to good account. Vague traditions, gleams of information derived from veteran mariners, the seeds and fruits of unknown plants washed upon the western coasts of Europe, were the grounds on which Columbus built his hypothesis of a New World, whose discovery has rendered his name immortal. The facts were there, but others lacked the skill to interpret them. In the case of Columbus the writing on the wall had remained unread for ages : in that of Harvey the characters had not been traced so long. I do not know that that detracts from the skill of the interpreter.

We have no means of telling what foreshadowings of his great discovery had been present to Harvey's mind in Padua, though it is evident from various incidental allusions to his work there that it had constant reference to the great unsolved problem which he was the first to answer.

Harvey passed nearly five years at Padua, when he took his degree on April 25, 1602; and the names of Fortescue, Willoughby, Lister, Maunsell, Fox, and Darcy, who are mentioned as Englishmen present on the occasion, tell of the genial temper of the man who from youth to old age possessed the charm that drew around him 'troops of friends.' Returning to England soon afterwards, he became Doctor of Medicine of Cambridge in 1603; joined the College of Physicians in 1604; added to the honour of our Fellowship by being himself enrolled among the Fellows in 1607; married, settled in London, and commenced practice here, and in 1609 became Physician to St. Bartholomew's Hospital.

It is, perhaps, idle to wish that we could get a glimpse of Harvey's home in these his early days; a young physician just started in London practice. All we can do is to mention a few of those who formed at that time the circle of his friends and acquaintances; and first among them we meet with two who were with him in his old Paduan days; Matthew Lister and Simon Fox, both of them men of mark. They were Harvey's seniors in point of age, but

settled in London about the same time with him. Lister became Physician to the Queen of James I.; but he was besides the trusted friend, steward, and councillor of Mary, Countess of Pembroke, whose name will live as long as Sidney's 'Arcadia' or Jonson's epitaph are remembered. Fox, bred at Eton and at Cambridge, then served with the English army in the Netherlands,[1] under Sir John Norris, then studied medicine at Padua, where he graduated, and whence he returned to London in 1603. Though ten years Harvey's senior in years, he was his junior in standing in the College, and succeeded to his post as Anatomy Reader, on Harvey's resignation. He rose to well-deserved honour, became Elect, then President, and died with a reputation fully equal to the euphuistic Latin epitaph of his friend and cotemporary, Dr. Hamey.[2] Harvey himself married a daugh-

[1] Dr. Munk, the learned and kindly Harveian Librarian, states that Fox took his degree at Padua before joining the army in the Netherlands. I believe that any one who consults the history of the time will see that the statement in the text is the more correct.

[2] Dr. Munk quotes it in his Roll of the College, vol. i. p. 139:—'Patuit totum Foxium ad honesti normam factum esse, gravem sine morositate, religiosum sine super-

ter of Dr. Lancelot Browne, who was physician to Queen Elizabeth, and I do not think we need go much further in order to picture to ourselves the society in which he lived, that of the 'old courtiers of the Queen,' which the old song contrasts, as we do not forget, with that of the 'King's young courtiers.'

Still these fancies, though they may serve to please the imagination, and to lend colour to an outline painfully indistinct, make no real addition to our knowledge of the inner life of Harvey, any more than does the fact that he attended Charles the First's kinsman, the young Duke of Lennox,[1] to the Continent in 1630; or

stitione, magnificum sine luxu, munificum sine commemoratione, nitidum sine curiositate, facundum sine tædio, prudentem sine fraude, amicum sine fine, opulentum sine injuriâ, cœlibem sine mollitie, historicum sine studio partium, poetam sine nugis, oratorem sine calamistris, philosophum sine sophismatibus, et medicum denique sine omni histrioniâ.'

[1] James Stuart, 4th Duke of Lennox, son of Esme, 3rd Duke, nephew of Lodowick, 2nd Duke of Lennox, and 11th Duke of Richmond, acceded to the title in 1625; created Grandee of Spain while abroad on his travels; on return made P. C. Lord Warden of the Cinque Ports, and K.G.; married the Lady Mary Villiers, daughter of George, Duke of Buckingham; was one of the mourners who attended

that he accompanied Thomas, Earl of Arundel (a name which no scholar, no lover of art can hear unmoved), in the year 1636, during the nine months of his special embassy to Vienna.[1]

Our further concern with Harvey is with his work; his discoveries, with the reasons why we so venerate his memory, why, in making mention of the benefactors of this College, it is my duty impressed on me not only, Sir, by your commands, but by the grateful sense of the past two centuries, to name Harvey first, and separated by a long interval from those whose merit yet most nearly approaches his.

I have said that the work of the previous

the funeral of King Charles I. at Windsor, and died in 1655. See Playfair's 'British Family Antiquities,' vol. iii.

[1] Son of Philip Howard, Earl of Arundel, and of Ann Dacres, his wife, and grandson of that Duke of Norfolk who was executed on June 2nd, 1572, for complicity in the intrigues of Mary Queen of Scots. He deserves to be remembered, first, for his parents' virtues, to which the late Duke of Norfolk raised a touching monument by the publication of the contemporary lives of Philip Howard, Earl of Arundel, and Anne Dacres, his wife, 8vo. London, 1857; and second, for his own devotion to art, which has made his name a household word with all art-lovers everywhere. See sketch of his life in Collins's Peerage, by Brydges, 8vo. 1812, vol. i. p. 112–125.

fifty years was needed to render Harvey's great discovery possible. This is not to be forgotten by any of us labouring at mere details of which, when we have ascertained them most certainly, we yet cannot see the purport or the uses. Sooner or later they will surely find their place.

It would take too long to enumerate all the anatomical discoveries that were made during the fifty years before the time of Harvey. I will therefore mention those only which have reference to the circulatory system.[1] During this time the relations of the vena cava to the heart on the one hand and to the portal vein on the other were ascertained. The existence and distribution of the valves of the veins were made out and their purpose was conjectured, though these conjectures were to a great degree erroneous. The tricuspid valve of the heart was described and its uses were correctly explained. The absence of any direct communication between the two sides of the heart was placed beyond reasonable doubt; and a theory

[1] For an account of the anatomical discoveries which preceded Harvey's time, see Sprengel, 'Versuch einer pragmatischer Geschichte der Arzneykunde,' Halle, 1827, 8vo. 3ter Theil; 4tes Capitel.

was thus disposed of which had been built in part (as so many false theories are) on incorrect observation, though it rested in part also on over hasty inference from a condition which really exists in the fœtus. And lastly, and beyond all other points in importance, the smaller, or pulmonary circulation, was discovered and correctly expounded, though some erroneous hypotheses, the figments of mere fancy, the ghosts of old traditions, still hung about and obscured the simple truth.

To obtain these results so briefly catalogued many most able and accomplished men had spent their lives with no other reward than this, that in after years young students of anatomy should know the Ductus Arteriosus by its synonym of Ductus Botalli, or should learn to designate the little sesamoid bodies at the edge of the semilunar valves of the aorta and pulmonary artery as the Corpora Arantii, without for one moment asking who Botalli was, or what years of patient study, such as at this day we know nothing of, were needed before Arantius made those discoveries which have preserved his name, and little more than his name, from utter forgetfulness.

The following may be taken as a fair summary of what was known with reference to the circulation of the blood before Harvey's great discovery. The blood was known to pass from the right ventricle and circulate through the lungs, returning in part at least to the left side of the heart. But the current opinion was, that not all the blood, but only the thicker and impurer part followed this course, while some of the purer still remained in the right side for further use, and a portion of it transuded through the minute apertures which imagination still feigned, though sense could not discern them, to the left side of the heart. Here as in an alembic the purer blood mixed, as was supposed, with a certain vital spirit with which the lungs had impregnated it, was transformed or distilled into that æther of twofold composition, one part sanguineous, one äereal, which it was the special office of the arteries to convey, informing the whole body with life, while the veins supplied the blood which subserved the humbler purposes of nutrition. Between these two sets of vessels there was supposed to be no direct communication—no circulation in the proper sense—but in each there went on a

perpetual flux and reflux, an ebbing and a flowing tide, a tide,—so influenced by the same causes as govern the tides of ocean ; and hence, even in ordinary functions of the body, the aspect of the moon, the conjunctions of the stars, controlled or at least modified them all. The heart, too, was not only the generator of vital heat and seat of life, but the source of the passions, and, when unrenewed, the dwelling-place of evil, its seat and throne.

> ' Where life, and life's companion, heat, abideth ;
> And their attendants, passions untamed,
> Oft very Hell in this straight room resideth,
> Yet that great Light, by whom all heaven shines
> With borrowed beams, oft leaves his lofty skies,
> And to this lowly seat himself confines.'

So sings,[1] or stammers rather, one of Harvey's contemporaries, the least poetical of a family of poets.

I have quoted these lines, not for their merit certainly, but because they afford a good illustration of that mixing up of the figurative expressions of theology in scientific enquiries which interferes grievously with the investiga-

[1] Phinehas Fletcher, ' Purple Island,' Canto iv. verses 25–6 ; Editio princeps, Cambridge, 4to. 1633.

tion of truth in the world of matter, while it yields no real because no intelligent homage to the higher world of belief. To Cæsar that which is Cæsar's, holds good in the realm of intellect as well as in an earthly state. Each has its rights, human intelligence as well as Divine authority, the lower as well as the higher. To confound the two were to render true fealty to neither.

One dares not, in an Oration to commemorate Harvey, omit, how superfluous soever the mention may be, some brief statement of what his great discovery was.

It was twofold.

*First.*—After corroborating the statements of those who had denied either that blood transudes through the walls of the ventricles, or that the pulmonary veins bring back to the left side of the heart air commingled with the blood, he asserts that the left ventricle has no other function than that of impelling the blood brought to it through the arteries, which themselves contain blood and nothing else, not air, nor vital spirit, but blood purified by its passage through the lungs, and so made apt for the nourishment of the whole body; and

*Second.*—That while the arteries thus distribute everywhere the fresh pure blood, the veins with which they communicate bring back that same blood, no longer pure, to the right side of the heart, whence it is once more transmitted to the lungs, thence carried again revivified to the left ventricle, and then once more distributed throughout the body, its changes not being those of an ebbing and a flowing tide, but the ceaseless current of an onward rushing river.

We have no means of tracing step by step Harvey's progress, or of knowing when the grand simplicity of the Circulation of the Blood first revealed itself to him as unquestionable truth. 'I have found out that which will make my name immortal,' exclaimed Charles Bell one day in hot haste, when the idea of the two systems of nerves, the motor and the sentient, presented itself to his mind as no vague fancy, but as the conclusion to which careful experiment and thoughtful reflection had brought him. Bell was fortunate in the *Vates Sacer*, the faithful companion, the ever-ready secretary; shall we say the muse who attended on his genius, or the angel guardian ever

by his side, who smoothed his sometimes rugged path, who chronicled in her memory each word and deed of his, and who with exquisite grace has revealed enough of him to make us understand how much there was in his character to love as well as to admire.[1]

The name of Harvey suggests that of Bell as of the one man who stands next to him ; I had almost said, and do not care to unsay it, who stands side by side with him by virtue of his deep insight into the structure of our frame and of the laws by which its functions are governed. I trust to your indulgence, Sir, to pardon me this digression.

Of Harvey's inner life we have no record, and so all we know is that he taught the doctrine of the Circulation of the Blood as early as the year 1615, when he held that office of Lumleian Lecturer, to which the too indulgent judgment of your predecessor, three years ago, Sir, promoted me. It was not, however, until the year 1628, when Harvey was fifty years old, that he gave to the world the full fruit of his labours, in his 'Exercitatio de Motu Cor-

[1] Letters of Sir C. Bell, 8vo., London, 1870.

dis,' which was published at Frankfort-on-the-Main.[1]

I know few scientific treatises so interesting as this; whether one reads it in Harvey's own Latin, or in the most excellent translation of Dr. Robert Willis, whose early kindness to me I desire here publicly to thank him for, while I congratulate him on the not inglorious learned leisure of a ripe old age.

What first strikes one in reading Harvey's essay 'On the Motion of the Heart,' and still more in his two letters written years afterwards to the younger Riolanus who had attacked his doctrines, is the exquisite courtesy of his tone towards his opponents. It is the more remarkable since it was so little the custom of the time. He mentions no adversary's name except to couple it with praise, and the hardest words I find him use are in the commencement of his second letter to Riolanus,[2] which I venture to render thus:—

'Some there are, detractors, mountebanks, foul-mouthed, whose writings I have made it a rule to myself never to read, since I should

[1] Life, in Willis's 'Harvey,' p. xxii.

[2] Harvæi Opera; College Edition, p. 109.

think them unworthy of answer. They may indulge their spleen for me; few right-minded persons will care to read what they have written, nor will they obtain that greatest and most desirable of all gifts, the wisdom which God, the giver of all good, grants not to the evil.'

Harvey lived in an atmosphere too pure for clouds from the lower world to reach him, or if, remembering his famous conversation with Sir George Ent,[1] to which we owe the fragment of his other great work, we cannot deny that strife vexed, and detraction pained him, he at any rate, in spite of his choleric youth, had learnt well the lesson of which there is no better nor terser version than the Psalmist's, 'Fret not thyself in any way to do evil.'

The same calm temper shows itself all through his essay. There is nothing in it for

[1] Opera; p. 162, and Willis's translation, p. 147.

'And would you be the man,' said Harvey smiling, 'who should recommend me to quit the peaceful haven, where I now pass my life, and to launch again upon the pathless sea? You know full well what a storm my former lucubrations raised. Much better is it oftentimes to grow wise at home, and in private, than by publishing what you have amassed with infinite labour, to stir up tempests that may rob you of peace and quiet for the rest of your days.'

display, no attempt at fine writing, no disparagement of others, no indirect laudation of himself; not a word to show that he ever dreamt of the undying fame which was to be his reward. He seems to have gone about it as if it were the simplest thing in the world to have made the greatest discovery that ever had been made in Anatomy and Physiology. He quietly details his observations, adduces his arguments, answers objections, draws his conclusions, and at last, when he has exhausted his facts, and completed his train of reasoning, he just writes his last sentence and lays down his pen.

I will not attempt to give an analysis of his great work, nor to describe the way in which, step by step, Harvey builds up his argument. This has already been done by others far better than I could hope to do it; and I should be sorry to attempt to tread where I know I should falter, in the steps of the Linacre Professor,[1] who last year filled the post which, with a sad sense of my shortcomings, I am now striving worthily to occupy.

Nor will they who heard the Harveian

[1] Dr. Rolleston, of Oxford.

Oration three years ago [1] blame me if I pass without further notice that great work on Generation, which (incomplete though it is, and imperfect as it must needs be, owing to the absence in Harvey's time of many of those helps which were absolutely essential to arriving at the truth) remains like the torso of some ancient statue, the imperishable monument of the artist's genius.

I will keep, with your permission, Sir, to the lower level, where I can walk most securely. 'I am not high-minded, I have not high thoughts, I meddle not with things that are too wonderful for me,' said one of old, and the tradition has been well kept up in the College, which once enrolled you among its Fellows, Mr. President: and where the low and narrow gate Humility leads to the gate of Honour.[2]

[1] By Dr. Arthur Farre.

[2] It seems almost an impertinence to add the name of Gonville and Caius College, Cambridge, with, as Fuller quaintly terms them, its 'three gates of remark. The gate of *humility*, low and little, opening into the street over against St. Michael's church; the gate of *virtue*, one of the best pieces of architecture in England, in the midst of the College; thirdly, the gate of *honour*, leading to the Schools. Thus the gates may read a good lecture of morality to

In this utilitarian age the question may well be asked, no unreasonable one indeed in any age, What was the practical outcome of it all; what was the use, the good of the discovery of the Circulation of the Blood? First, I may perhaps be allowed to say, though the remark is trite enough, that the mere finding out of any truth, be that truth what it may, is clear gain. So long as we do not deify human intellect, every triumph that it achieves enriches all; and it is as proud a thing for us to be able to claim citizenship with Newton or with Bacon as with Wellington or with Nelson. Nor is this all, but in Harvey's time the manner in which he conducted his enquiries was in its teachings of value little less than was the result at which he arrived. Four years before the 'Novum Organon' appeared,[1] he had anticipated its famous lesson, 'Non fingendum aut excogitandum quid natura faciat aut fiat,' and had proved beyond the possibility of refutation, what years after-

such who go in and out thereat.' Fuller's 'History of the University of Cambridge,' 8vo., London, 1840, p. 189.

[1] The first edition of Bacon's 'Instauratio Magna, i.e. Novum Organon, &c.,' was published in 1620, in folio, at London. See Lowndes' 'Bibliographer's Manual,' Bohn's Edition, London, 1840.

wards he asserted in eloquent words, 'That facts cognisable by the senses wait upon no opinions, and that the works of nature bow to no antiquity; for indeed there is nothing either more ancient, or of higher authority than nature.[1]'

Still, to us as practitioners of the healing arts, what help came there in the exercise of our calling? It is said that Harvey had the rare happiness, notwithstanding the opposition which at first attended the announcement of his discovery, to see it universally accepted before he died. Was human life prolonged, was human suffering mitigated, as its direct and immediate consequence? To both these questions we must answer *No*; but the *no* must be accompanied by two qualifications.

*First.* In the ordinary affairs of human life many things are done rightly, but on wrong, or at least, on insufficient grounds, just as in the world of morals many a man is diligent, or temperate, or chaste, on grounds far lower than the noblest. The seaman still navigated his ship in the main correctly by the stars nearly three hundred years after the use of

[1] Second Letter to Riolanus, Willis's 'Harvey,' p. 123.

the Mariner's Compass was known in Europe, and treatises on the use of the Astrolabe continued to appear down nearly to the end of the sixteenth century.[1] The Ptolemaic theory of the Solar System was wrong, but it served to calculate eclipses by as well as the Copernican.

But *Second*. We, with our narrow span of life, are naturally in a hurry for results. What comes not in our own time seems delayed indefinitely, and we feel as little children do when they dig up the ground in their impatience to learn whether the seeds they planted have yet begun to sprout. It was thus once supposed that in the realm of nature effect followed cause in quick succession, and it was little thought how slow is the action of those powers which have by their continuance upheaved mountains, or have hollowed out deep seas. So, too, in the world of intellect the remote consequences of a discovery are long in disclosing themselves, impossible to be foreseen. No gift of second sight showed at the time to anyone the electric telegraph in Franklin's experiment made a hundred and twenty years ago. Harvey admired the

[1] See list of works on the Astrolabe, in Brunet's 'Manuel du Libraire,' Paris, 1865, vol. vi. p. 491.

skill of the artificer revealed by his researches as it had never been before; but of the practical result of those researches he saw but little; and could never have imagined with what accuracy we can now, thanks to his labours, ascertain the nature and seat of disease in each of the four cavities of the heart itself, presage its course, and even where we cannot cure, obtain at least an euthanasia for our patient, and rob death of half its terrors by depriving it of more than half its suffering.

Harvey's merits as a discoverer have thrown into the shade his claims to be remembered as a physician. It may be doubted, however, whether if we had adequate means of forming a judgment, we should not find him entitled to occupy a far higher place than is commonly assigned him, on no better grounds than are furnished by a few depreciating remarks of Aubrey.[1] He understood the value of morbid anatomy as the only sure ground on which

[1] 'I never knew any that admired his therapeutique way. I knew several practitioners in this towne (London) that would not have given 3*d.* for one of his bills, and that a man could hardly tell by one of his bills what he did aime at.' Lib. cit. p. 385.

pathology can stand ; and true to his guiding principle in his great discovery, while thanking Riolanus for his 'Enchiridion Anatomicum et Pathologicum,'[1] the fruit, he says, of labours worthy of the prince of anatomists, he uses the following remarkable words, true beyond all controversy as far as regards material things: 'Nulla est scientia quæ non ex præexistente cognitione oritur, nullaque certe et plene cognita notitia, quæ non ex sensu originem duxit.'[2]

Riolanus in his book had indulged himself in the idle fancy of attempting to deduce from examination of the bodies of healthy subjects inferences as to the nature and seat of the diseases to which the human frame is subject; and Harvey says that, stimulated by his example, he too proposes to publish his 'Medical Anatomy, or Anatomy in its Application to Medicine,' a work, which it will be observed, he speaks of as being completed and only waiting for the printer. But his mode of proceeding in this work, he says, is different from that of Riolanus, since he purposes 'to relate from the many dissections I have made of the bodies of

[1] Published at Leyden, in 8vo., in 1649.

[2] 'Exercitatio Prima, ad Riolanum,' Opera, p. 91.

persons diseased—worn out by serious and strange affections—how and in what way the internal organs were changed in their situation, size, structure, figure, consistency, and other sensible qualities, from their natural form and appearances. And just as the inspection of healthy and well-constituted bodies contributes essentially to the advancement of philosophy and sound physiology, so does the inspection of diseased and cachectic subjects powerfully assist philosophical pathology.'[1]

Just a century later, Morgagni, in his great work, 'De Sedibus et Causis Morborum per Anatomen indagatis,'[2] brought honour to his own name and to Harvey's own University of Padua, by doing excellently well what Harvey had done before. Still we cannot but lament the destruction of Harvey's finished manuscript, which might have set our art forward by a hundred years. We regret the lost treasure as we do the

'Wedges of gold, great anchors, heaps of pearls,
Inestimable stones, unvalued jewels,
All scattered at the bottom of the sea.'

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[1] Opera, p. 91, and Willis's translation, p. 89.
[2] First edition, published at Bassano, in 1761.

Nor is this our only loss. Harvey refers on many occasions, as to a completed work, to his 'Medical Observations,' and introduces, especially in his 'Exercitatio de Partu,' many illustrative cases which he says he extracts from it. These cases are remarkable for their clearness, brevity, and for the aptness with which they bear upon their subject; and, as far as the purpose for which they are adduced admits of it, they show also much homely common sense, and much practical medical skill.

We may the more deplore the loss of these 'Observations,' since they were by no means limited to one department of medicine, but seem to have been very extensive in their scope, while their record appears to have been specially a labour of love to Harvey. He refers to them in his second letter to Riolanus, when speaking of the influence of the mind upon the body:

'But here,' says he, 'I come upon a field where I might roam freely and give myself up to speculation. And, indeed, such a flood of light and truth breaks in upon me here, occasion offers of explaining so many problems, of resolving so many doubts, of discovering the

causes of so many slighter and more serious diseases, and of suggesting remedies for their cure, that the subject seems to demand a separate treatise. And it will be my business in my "Medical Observations" to lay before my readers matter upon all these topics which shall be worthy of the gravest consideration.'[1]

What would not such a book have been, written on such subjects by such a man! But it perished in those civil wars which yet were to Harvey nothing more than the most natural occasion for calling into practice the lessons of loyalty to his Sovereign and of love to his country which he had learnt in his childhood. So little could bitterness dwell in his memory, that in a letter written when eighty years of age to Nardi,[2] at Florence, he says, 'I send you three books upon the subject you name;' and not a word more does he add, though the subject was those very civil wars which had driven him from his home and his pursuits, which had slain his Sovereign and his friend, and had destroyed by the hands of a fanatical soldiery the fruit of years of labour.

[1] Willis's translation, p. 129. [2] Ibid. p. 611.

In Harvey's case indeed Apollo seems to have cared but ill for his votary.

> 'Captain, or Colonel, or Knight-in-Arms,
> Whose chance on these defenceless doors may seize,
> If deed of honour did thee ever please,
> Guard them from harm!'

So pleads Milton for himself with the Cavaliers. I am sure had he known Harvey he would have pleaded no less earnestly for him with the soldiers of the Commonwealth.

Harvey bowed without a murmur to the stroke of which later times have felt the full weight.

But I see, Sir, my little hour is well nigh spent, and I have as yet done but scant justice to one part of my theme, though that is indeed the greatest, the real occasion of our meeting here. A word or two must still be said to commemorate the Benefactors of our College; and I am forbidden to end without the endeavour to stir up myself and you, my colleagues, to a diligent enquiry into Nature's ways.

Benefactors—those who have done us good, or have shown us kindness; in vulgar sort, those to whom we owe gifts of money, grants of land, something or other that can be bought

or sold in open market. According to this reading, few indeed have been our benefactors. Harvey, it is true, adopted this College as his heir, and left to us his lands, his books, as well as his name and fame and the example of his virtues. Dr. Hamey, too, gave us money, and we have had small bequests and gifts from other sources; but it all amounts to but little, some 600*l.* a year or so. We must seek a higher meaning for the word 'benefactors' than is associated with any idea of money.

'Non ebur neque aureum
*Nostrâ* renidet in domo lacunar:
Non trabes Hymettiæ
Premunt columnas ultimâ recisas
Africâ.'

What comparison will this our College bear with the magnificent halls of the great City Companies?

I remember, Sir, how, once a year, it was my duty when Censor to be present when stock was taken of our plate. You will correct me if I give the inventory wrongly. A silver punch-bowl, innocent for the past fifty years at least of the generous brewage, and used ever since I can remember to collect the voting-papers at

our elections; a pair of silver candlesticks, a silver inkstand, and a silver bell, and your wand, Sir, the emblem of your office. It all, if melted down, might fetch perhaps twenty pounds, but I doubt it.

'At fides, et ingeni
Benigna vena est.'

In that stood the old Roman's wealth; in that stands ours.

Our great benefactors are they who have left us the inheritance of their example. They are such as Sydenham, who, with clear, open intellect, looked around him in search of truth: who used theories and systems as counters to mark with, or as the cords with which to tie his facts into bundles for greater convenience, and more handy reference. And so with him it has come to pass, as with Hippocrates, that no time will ever antiquate his writings, nor advance of scientific knowledge lessen their value. Or such as Meade, the man of universal culture, and yet the great practical physician—

'Health waits on Meade's prescription still—'

says a contemporary,[1] the associate of princes,

[1] Sir C. Hanbury Williams, in a Grateful Ode, as he

the patron of learning, the poor's best friend: to whom worldly success came in a larger measure than to most, but whom yet none envied while living, all mourned when dead; and the secret of whose rare good fortune was that he lived in the spirit of his own motto, 'Non sibi, sed toti.' Or such, in later days, as Jenner, who devoted his whole life to the patient investigation of the means by which the once greatest scourge of modern Europe might be rendered well-nigh harmless. Or, lastly, to come down within the personal recollection of many of us, such as Bright, toiling unrewarded for years; investigating disease in the wards of the hospital, and studying its consequences in the dead-house, till he had found out and described a previously unknown malady; nor only that, but had also pointed out the means by which to accomplish its prevention, and to attain its cure. And when his recompense had come, though tardily, and when at the summit of his success, he still retained all the simplicity and gentleness of a child. One approached him without fear, and

terms it, to two of the Bath doctors, in acknowledgment of his daughter's recovery. See his Works, London, 1822, vol. i. p. 232.

scarcely conscious of the distance between oneself and him. So ready was he to impart knowledge, he seemed only a senior student; so kind was he in his way of doing it, he seemed rather an elder brother.

'They are all gone into the world of light,'

as says, in one of his most touching poems, a cotemporary of Harvey's later years, who caring little for academic titles, or for worldly honours, left the turmoil and the throng to pass his life quietly on the banks of Usk, tending the poor as a village doctor, and finding his refreshment and his solace in the composition of those verses which he has left behind for ours. Another and a different illustration this, which Henry Vaughan affords of the benefactors whom we on this day are bound to have in special remembrance.

One thing in common belongs to Sydenham, and Jenner, and Bright, as to so many whom time fails for me to mention here. They were most diligent in seeking out nature by way of experiment, as Harvey has it by an old use of the word which signifies to find out, or learn by experience, not to settle or pre-determine by

plausible conjecture, or by reasoning, what is most likely or most fitting. But there never was a time when this exhortation was less necessary than at present; so busy is every one, with the aid of all imaginable scientific helps, in investigating the structure and functions of the body, and in unravelling the problems presented by its diseases. It is to the former rather than to the latter of these two classes of enquiries that the objection must attach, if attach it does, that its conclusions sometimes seem opposed to the doctrines of religion, and that its pursuit is unfavourable to the humility and the teachableness on higher subjects which we are all bound to cultivate. I apprehend that any such objection applies even more forcibly to metaphysical study than to scientific research; and we cannot forget that the poet represents the highest of the fallen spirits as seeking distraction in their uneasy rest, by discourse

> 'Of Providence, Foreknowledge, Will, and Fate,
> Vain Wisdom all, and false Philosophie;'

and leaving the secrets of this material world, 'which things the angels desire to look into,' unscanned.

But further, such objections as there are, attach not to the facts observed, but to the inferences, the generalisations drawn from imperfect knowledge. None of us who can remember the first broaching of Schwann's famous theory of cell-formation, but must have been struck by the modifications which thirty years have introduced into the doctrines then propounded. We may take a fact for true as far as our means of observation reach, but it must be with the consciousness that with the increase of those means the truth may seem far other than it did before, as when more powerful telescopes resolved the nebulæ into myriads of stars. Nor only so, but there is many a fact of which we can see a part only, cannot take in the whole of it at once; and hence our notions concerning it must needs be incorrect. Let one person describe the Matterhorn as seen from the Italian side, and another as he viewed it from the Riffel, and it would be hard to recognise in the two accounts the same wonderful mountain. The description, too, would differ, according as the object were looked at when the dense storm-clouds were settling down upon it, or when the rosy vapours of the setting sun were beautifying, though half

concealing it, or in the clear sky of early morning when its out line stands out distinct. And so it is, too, in our investigations into scientific questions. If our view is obscured by any prejudice for or against this or that inference, which a fact seems to invalidate or to support, or even if the hues of religious sentiment are allowed to intervene and colour it, we see indistinctly and judge wrongly. It is only the *Lumen siccum*, the pure light of passionless intellect, which shows things truly and distorts them by no refraction. It is thus only that we can enquire into the truths written by God's own finger on the world, and on all that inhabit it. '*Sine odio, sine studio*,' with no prejudice, no favour, for it is eternal truth we seek after; not shocked, nor scandalised, because other seekers as honest as ourselves arrive at conclusions which do not harmonise with ours, for in matters of science at least, 'it is not impossible that truth may have more shapes than one.' Therefore, to quote further from the words of the same great master,—

'Give Truth but room, and do not bind her when she sleeps, for then she speaks not true, as the old Proteus did who spake oracles only

when he was caught and bound; but then rather she turns herself into all shapes except her own, and perhaps tunes her voice according to the time, as Micaiah did before Ahab, until she be adjured into her own likeness.'[1]

But many a child knows the alphabet who cannot spell, or spells but cannot read, or reading fluently enough, yet fails to catch the full meaning of the sentence. And so I take it we must feel that at the best we are but children who have scarce learnt to spell out the words, and who dare not therefore be too positive as to their true significance.

Or, to change the metaphor, our theories and systems are but as the scaffolding which serves to raise the building. As the building rises the scaffolding is struck, and we may be content if it has answered well its temporary purpose. We must not hold too confidently to opinions which a few years may show to be partial, if not wrong, and may wait patiently in hopes of a clearer vision, as he of old who first saw 'men as trees, walking,' afterwards, under the Divine touch, beheld all clearly.

[1] Milton's 'Areopagitica;' in Works, 8vo., London, 1867, vol. iv. p. 444.

And it is thus, I believe, and in this spirit, that we shall avoid all danger of dogmatising or of concluding rashly from our most imperfect view of things that come under the cognizance of our senses with reference to those higher things which are beyond our ken. There is indeed a happiness enjoyed by those who with firm conviction yield to some truths an assent more undoubting than any to which reason alone would lead, and to which none but they can attain. Thus it was that Pascal followed his scientific pursuits, with no solicitude as to the conclusions to which they would conduct him, safe in the 'more sure word of prophecy' to which it behoved him to take heed.[1]

But even for those who are not able to subscribe to Pascal's creed, there is yet enough in all the changes of scientific theory and opinion to lead them when doing battle for some hypothesis that may seem opposed to old beliefs, to bear in mind that after all they may be mistaken, that the ancient creed may have more

[1] See Dr. Pusey's Sermons, preached before the University of Oxford, between 1859 and 1872; 8vo., London, 1872; Sermon I. identical in teaching with Newman's 'Grammar of Assent.'

truth in it than seems. I know of no more wholesome state of mind for the investigation of truth than the ever-present consciousness of the possibility of error.

I feel, however, that I have small justification for speaking of the frame of mind befitting those who investigate the great secrets of Nature. The magician's power to compel her to disclose them has been denied to me. *Miror magis.* I wonder, I admire, and I rejoice in the safer, humbler walk which our profession opens to the less gifted, as it does to me.

The study of our body, of its wonderful adaptation of means to end, has led all of us to recognise the reign of law, and most of us to see behind the law the Lawgiver, 'the divine Harmostes who arranges all in such methodical and tunable proportions.'[1] And yet we come upon the difficultics—the insoluble difficulties of mechanism, not so perfect but that it might have been more complete; sure to wear out, and in its decay certain to entail suffering,—suffering avoidable, unnecessary, which the great Ar-

[1] See also the whole of the eloquent Chapter II. of Book IV. of Cudworth's 'Treatise concerning Eternal and Immutable Morality,' 8vo., London, 1731; especially pages 176–177.

chæus might, had he chosen, have prevented. Much ingenuity has been exerted in the endeavour to explain away these difficulties, and at the same time to resist the conclusion, '*Non omnis moriar*,' which explains them all.

But our profession gives us, in its daily exercise, the solution of the problem. We have to do with the spoilt, not with the perfect; the meaning presses on us; we find it in a brief sentence, half of which most are ready to utter with reverence, '*Deus qui humanæ substantiæ dignitatem mirabiliter condidisti*;' 'God who in creating human nature didst wonderfully dignify it;' but two words are still wanting to complete it, '*et mirabilius reformasti*,' and 'hast still more wonderfully renewed it.' These solve the otherwise insoluble equation, these give the answer to the enigma.

I have thus striven, Sir, as best I could, to obey your commands, and to set before the Fellows and Members of this College the great Harvey and the times in which he lived. I have endeavoured especially to dwell upon those features in his character—the gentleness, the forgetfulness of injury, the love of truth, the love of others, the highest love in which all of us can best hope to follow his example.

I trust, however, that I have not failed to render such homage as I could bring (and the offerer's gift must not be measured by his poverty or by his wealth, but by the heart which brings it) to the genius of Harvey, and of all whose endowments have enabled them since his time to follow where he led. I have claimed, too, for them and for all investigators into Nature's ways the most unshackled freedom of enquiry. But knowing how upon great heights the head is apt to turn dizzy, and how the consciousness of having attained an elevation which few can ever dream of reaching tends to induce self-admiration and intellectual pride—'by that sin fell angels'—I have ventured to recommend, as an unfailing talisman against such dangers, that *Hæmony*

> 'More medicinal than that *Moly*,
> Which *Hermes* once to wise *Ulysse* gave.'

If in so doing it should seem to any of my friends, my colleagues, or to any of my audience, that I have overstepped the limits of my office, I ask their pardon, Sir, as I ask yours.

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*Spottiswoode & Co., Printers, New-street Square, London.*