Poetical Allusions to the Circulation of Blood up to the end of the Seventeenth Century

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SUMMARY
The history of medicine has conventionally been studied by research into prose medical texts, which provide an index of the depth of the professional knowledge available to the contemporary physician, but examination of poetry gives a measure of the diffusion of this knowledge into the lay. William Harvey's monumental discovery of the circulation of the blood in 1628 is now acknowledged as a revolutionary milestone in the history of medicine. It was met however with initial rejection by the majority of his colleagues, and it was not until over twenty years later that Harvey and his discoveries start to be mentioned in poetry. It is interesting to note that the eventual acclaim for his work might well have been based on its correspondence with the rain cycle! In the second half of the century, medical poets start to pay tribute to Harvey's contribution, and a number of his colleagues wrote eulogies to him and his work.

RESUMÉ
La recherche sur l'histoire de la médecine a traditionnellement été l'étude de la littérature médicale. Celle-ci nous montre l'étendue des connaissances à la disposition des médecins d'une époque. D'autre part, l'analyse de la poésie nous permet d'évaluer à quel point ces connaissances étaient connues des profanes.

La découverte capitale, par William Harvey, de la circulation sanguine en 1628 est maintenant reconnue comme un événement déterminant de l'histoire de la médecine.

À l'époque cependant, cette théorie a été l'objet d'un refus de la part de la majorité de ses collègues, et ce n'est que plus de vingt ans plus tard que mention est faite de Harvey et de ses découvertes dans la poésie.

Il est intéressant de noter que la reconnaissance ultime de ses travaux a peut être été due à leur correspondance avec le cycle de la pluie!

Dans la seconde moitié du XVIIe siècle, des médecins poètes ont commencé à rendre hommage à Harvey, et nombres de ses collègues ont écrit son panégyrique.

The doctrine of correspondences was a recurrent feature of Renaissance philosophy. It had been a means by which mediaeval man had sought some key to the unity of man, the Universe, and the Earth. Concepts of physiology were based on these fanciful analogies with Nature rather than scientific deduction and human dissection, and ideas about blood flow were derived originally from Empedocles’ ancient correspondence with the ocean tides, which postulated an ebbing and flowing of blood in the veins in a shuttlewise manner. Galen had modified and improved this simplistic idea and based it on a similarity with the rain-cycle. This was another easily understood correspondence, suggested by Aristotle, who had made an analogy between the blood being soaked up by the peripheral tissues in the same way that the rain which falls on the Earth is soaked up by the fields. It was hardly surprising that the doctrine of Correspondences was readily seized upon by contemporary poets, since it was in itself so essentially poetical.

Harvey himself not only compares the circulation of the blood to the circular motion of the planets but also to the ‘circular’ motion of rain, Which motion we may call circular, after that same manner that Aristotle says that the rain and air do imitate the motion of the superior bodies. For the earth being wet, evaporates by the heat of the Sun, and the vapours being rain’d aloft are condens’d and descend in show’rs and wet the ground.1

This cyclical movement from sea to clouds to rain to rivers to sea was perhaps an instance in the 17th Century mind of God’s providential ordering of the universe so that nothing is wasted. Sylvester in 1605 alludes to it clearly in Divine Works:

The purest humour in the Sea, the Sun
Exhales in the Air, which there resolved, anon
Returns to water; and descends again
By sundry ways unto his mother Main.1

The physician/poet Henry Vaughan refers to this rain-cycle in a translation from Latin of Boethius (A.D. 470/475-524). Vaughan translates:

As blood let out forsaikes the heart
And perisheth; but what returns
With fresh and brighter spirit burns?

Martin (1957) suggests that probablyVaughan is thinking here of Harvey's work on the circulation.1 It is more likely that he is considering the rain-cycle, which Boethius would also have known about. These few lines, in fact, are a very good rebuttal of the Empedoclean ebb-and-flow: after forsaking the heart, the blood does not trickle back - it perisheth. This is surely a suggestion that it is soaking into the tissues. It might be usefully added here that Plato and Anaxagoras had taught that all rivers and springs flowed from a vast cavern in the centre of the earth, and to it they proceeded. The book of Ecclesiastes refers to it somewhat obliquely: All the rivers run into the
The first poetic reference to Harvey's discoveries after 1628 is from William Cartwright in 1638. It is thought that this eulogy arose from the author's attending Harvey's celebrated Lumleian lectures, which began in April 1616. The second poem is in English and alludes to Harvey's argumentativeness, as well as his keenness for dissection:

"What ho! Doctor haruie, yt are ranked among perui, Are you still dissecting?"

This comes from an anonymous Cambridge medical student, and compared to the references to other doctors in the same manuscript is complimentary: most of the verses are an obscene libel on the Fellows of the College of the time.

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"New, not as th' year, to run the same Course o'R Well it hath run before, Lest in the Man himself there be a Round, As in his Humor's found, And that return seem to make good Circling of Actions, as of Blood."
Although this poem does not mention Harvey by name, there is evidence to show that the poet (who was a cleric) had social links with him.\textsuperscript{17}

The first poetical reference to the circulation theory, which quotes Harvey by name, is in 1651\textsuperscript{18} by Sir John Berkenhead (1616-1679), and interestingly is entitled Memory of Mr William Cartwright (who was the author of the verse quoted above).

\textit{For as immortal HARVEY’S searching Brain Found the Red Spirit’s Circle in each Vein... And proves its Circulation through all Arts. All-over Wit, ne’er runs a-ground, but rides In ever-flowing never-ebbing Tides.}\textsuperscript{19}

In 1653, Martin Lluelyn wrote the dedicatory poem to William Harvey’s other important anatomical book, Exercitationes de Generatione Animalium.\textsuperscript{20} Harvey is addressed,

\begin{quote}
\textit{With Drake and Candish\textsuperscript{2} hence thy Bays is curd Fam’d Circulator of the Lesser World}\textsuperscript{21}
\end{quote}

This compares Harvey’s discovery to the contemporary achievements of the great circum-navigators of the World. Lluelyn pays tribute to Harvey’s rejection of long-accepted yet unproven dogma and his reliance purely on scientific deduction from Nature,

\begin{quote}
\textit{Great Light of Art, Who to the long-dim World dost sight impart... This rescue thence, that Science is not Creed Who for their Age alone do Writers trust, From Books to Nature thy Appeale is made Thy Copies by their Archetype are swayd.}\textsuperscript{22}
\end{quote}

He also describes Harvey’s previous battle with adverse critics:

\begin{quote}
\textit{From Foreign Coasts, and to the conflict come, Some they bold Challengers, thy Seconds some But when Experience\textsuperscript{23} vanquish’t their defence And Prejudice was captive led by Sense: The Ingenious laid down Arms, and fled to you As their Instructor, and their Victor too.}\textsuperscript{24}
\end{quote}

This Seconds alludes to James Primerose, who was admitted to the Royal College of Physicians when William Harvey was an examiner. This was the year prior to Primerose’s virulent but groundless attack on de Motu Cordis, in his book, Exercitationes et Animadversiones in librum Guiliemi Harvaei de Motu Cordis et Circulatione Sanguinis,\textsuperscript{6} (1630).\textsuperscript{25} The Foreign Coasts is a reference mainly to Jean Riolan in Paris,\textsuperscript{26} Aemilius Parisianus in Venice,\textsuperscript{27} and Caspar Hofmann in AlttdorP (Germany), all of who joined in the onslaught and were highly critical of Harvey’s work. The last couplet above refers to Hofmann who later graciously and magnanimously recanted publicly and acknowledged Harvey’s great contribution.\textsuperscript{28}

Also in 1653, in the English translation of de Motu Cordis, appeared a very short dedicatory verse,

\begin{quote}
\textit{Long Aristotle, long may Galen live Whose great renown all ages shall survive And long live Harvey: they the Arts did find Which this brave Englishman has now refin’d.}\textsuperscript{29}
\end{quote}

In 1654, Thomas Washbourne, the canon of Gloucester, wrote a poem entitled The Circulation in which we are left in no doubt that Harvey’s theory and evidently his methods had become well known outside purely medical circles. Washbourne’s poem starts,

\begin{quote}
\textit{Our famous Harvey hath made good The circulation of the blood, And what was paradox we know To be a demonstration now.}\textsuperscript{30}
\end{quote}

He goes on to mention the correspondence of the rain-cycle (as well as other natural cyclical events):

\begin{quote}
\textit{Thus we see almost every thing Circling about as in a ring... Rivers which borrow from the main Their streams, do pay them back again.}\textsuperscript{31}
\end{quote}

In the following year (1656), the sceptic poet/physician John Collop included a eulogy to William Harvey in his iconoclastic Poes’s Rediviva. In this poem, Collop compares Harvey to a latter day Hercules:

\begin{quote}
\textit{Beyond a Hercules labours thou dost go, Seav’n headed Hydra; error multiply’d, Thou need’st no Club, thy knife can soon divide: Augean filths no work when vy’d with thee, Do’st cleanse the Jakes of all antiquitie, All truths before thine, did like heat-drops fall, Vanish’d so soon, scarce seen, or known at all.}\textsuperscript{32}
\end{quote}

In 1663, Abraham Cowley (1618 - 1667), regarded in his day as the foremost English poet... pays graceful tribute ...

to the great achievements of William Harvey.\textsuperscript{33} Like Collop, he too was a Royalist and was arrested by the Roundheads during the Civil War for carrying messages from Queen Henrietta in Paris back to the King. Indeed it is said that he was only granted his medical qualification by the government as a ‘blind’ in his activities in the Royalist cause and did his medical studies whilst arrested and released on £1000 bail.\textsuperscript{34} Whether or not this is true, he was certainly a Doctor of Physick (M.D. Oxon 1657).

The Ode to Harvey is one of three eulogies which Cowley wrote; the other two were dedicated to Thomas
Hobbes, the noted philosopher and the physician, Sir Charles Scarborough. These three men were also staunch Royalists. William Harvey had been Charles I's physician; Hobbes had spent 1641-52 in Paris where he had been personal tutor to Charles II. Scarborough had been ousted from his fellowship at Caius College, Cambridge by the parliamentarians in 1641 - the same year they had also plundered Harvey's large collection of anatomical specimens in the College Museum. (It was such Roundhead vandalism as this, which prompted Cowley to pen the phrase a barbarous War's unlearned Rage.) After Scarborough's ejection from Cambridge, he sought refuge in Oxford, where he was evidently keen to take up arms for the Cavaliers. William Harvey dissuaded him from such a violent course of action, saying, Prithee leave off thy gunning and stay here; I will bring thee into practice. Scarborough accepted this advice and in 1656, he succeeded Harvey as Lumleian lecturer at the Royal College of Physicians of London.

His Ode Upon Dr Harvey is almost an apotheosis, in which he alludes to the classical story of Daphne and Apollo, in which Apollo (Harvey) pursues Daphne (Coy tree), and goes on to say how Harvey has benefited medicine, which was itself in dire need of therapy:

Great Doctor! Th' Art of Curing's cur'd by thee,....
Purg'd of old errors by thy care
New dieted, put forth to clearer air,
It now will strong and healthful prove,
It selfe before Lethargick lay and could not move.

Sir Geoffrey Keynes, in his definitive biography of William Harvey, proposed that Cowley's book on Experimental Philosophy owed much to Harvey's influence: the title page has an insistence on experiment, and Cowley proposed the building of a college for Harveian style research with a surgeon and many animals for experimentation.

Also in 1663, the poet John Dryden (1631 - 1700) (who was Poet Laureate in 1668) mentions William Harvey and the Circulation.

The Circling streams, once thought but pools, of blood
(Whether Life's jewell, or the Bodie's food)
From dark Oblivion, Harvey's name shall save.

Dryden, like Cowley and Harvey was also an ardent Royalist, and in this poem-letter, which is dedicated particularly to Charleton's works on Stonehenge, Dryden uses the metaphor of the monolithic stone circle as an ageless symbol of the Divine Right of Kings, stretching back to time immemorial. This is perhaps an appropriate moment to point out that not all intellectual and scientific physicians were Royalists. Thomas Sydenham, the 'English Hippocrates', was a Parliamentarian Captain of Horse!

In 1679, the philosophical poet, Henry More published a poem in Latin called simply Circulatio Sanguinis. Despite the date of publication, it has been suggested that this poem was probably written a few years earlier. There is a possibility that More had met up with Harvey between 1651 and 1653. More's poetic tribute was in Latin, but it was eventually translated and published in English and is a joy to read.

It is a wonderful example of how serious medical tracts were presented to an amazed world not only in a poem but in the style of Latin verse usually used in classical Latin epic poetry. A few years later, another clergyman, Bishop Robert Grove also described the tying off of the aorta and vena cava in Latin verse (Carmen de sanguinis circuitu, a Guiliemo Harvaeo, primum invento, Londini, 1685).

Neither Thomas More nor Robert Grove were scientists. Indeed they were both vicars. Their clear acceptance and obvious understanding of Harvey's radical new theory indicates two important points. First it shows that the gulf between religion and science had not yet formed.

Indeed More's life-long interest in contemporary science was partly motivated by a desire to draw on it for the existence of spirit and of God. Secondly, together with Dryden's lines of 1633, they indicate that a knowledge and understanding of Harvey's work has now reached the non-medical public.
For the sake of completeness, it should be mentioned that in 1650 (seven years before William Harvey’s death!) a Dutch poem was written On the Death of Harvey by van Assendelft. This was included in the Dutch translation of de Motu Cordis published that year.44 This verse shows that although physicians in Continental Europe might have been mistaken about his death, (concerning which there had been rumours), by this time they had developed admiration for the important work of this great man.

It has been suggested that Harvey’s work did not only affect contemporary scientific thought. In Sawday’s study of the impact of Renaissance medical progress on contemporary literature, he has suggested that after the acceptance of de Motu Cordis, the language of English poetry changes. Harvey’s discoveries, symbolic of the advances of science itself would seem to have been assimilated into the common vocabulary of scientist and poet alike.45 Could it be that the scientists’ attempts to embrace a clearer style of English to describe their anatomical discoveries without recourse to allegory, has led to a clearer style of English to describe their concepts of the World?

Notes
a The term ‘perui’ (i.e. parvis) alludes to the group of argumentative lawyers who met on the parvis or small terrace in front of St. Paul’s.

b Candish here refers to Cavendish: Francis Drake (1580) and Thomas Cavendish (1588) were the second and third circumnavigators of the World.

c The word, Experience was also used to mean Experiment at this time.

d (Latin) A Dissertation and Depreciatory References to the Book by William Harvey about the Movement of the Heart and the Circulation of the Blood.

e This English translation is in HARVEY, William. The anatomical exercises of Dr William Harvey concerning the motion of the heart and blood, 1653, London. The original Latin poem (1648) is thus:

Vivat Aristoteles, vivat Galenus et ingens.

Hippocrates, quo rum fama perennis erit.

Vivat et Harveius, tum sanctas nempe tulerunte ills artes, quas nunc angius hie ecce colit.

f Hydra is the mythical nine-headed serpent of the Leman Marsh, killed as Hercules second labour. It was often used as a symbol for misjudgment since when one head was cut off, two more grew in the place!

g The Augean Filths alludes to another (the fifth) labour set by Hera for Hercules. The Augean stables had held 3,000 oxen and had not been cleansed for thirty years. When Hercules was tasked to cleanse the filthy stables, he diverted two rivers, (the Alpheus and Peneus) and so cleansed them in one day. Brewer’s Phrase & Fable says: To cleanse the Augean stables has come to mean To clear away an accumulated mass of corruption, moral, religious, physical or legal. (BREWER, E. Cobham. Dictionary of Phrase and Fable, 1870, rev.ed. Cassell, London, 1981, p.74.)

h The heat-drops are the slight shower foretelling a hot day.

i Proteus was Neptunes herdsman, who was impossible to catch: “he would elude anyone ... by changing his shape, for he had the power of changing it in an instant into any form he chose”


References


3 Ibid. Translation of Boethius, Consolation of Philosophy IV, iv, Ii. 68 - 70. see (n.2) p.358


5 ECCLESIASTES, Chapter I, v.7.


11 Ibid, p.244


13 DONNE, John. Devotions. 1624

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15 HUTH, Henry. Inedited Political Miscellanies, 1870 They were privately printed (20 copies only), about 1880 with the title Of London Physicians from a MS "Poetical Commonplace book of a Cambridge Student". (1611). The lines quoted are on p.8 of the copy in the Wellcome Library.


19 CARTWRIGHT, William, op.cit. (n.16) p.8. The poem takes up three and a half unnumbered leaves of the Dedicatory verse. The lines concerning Harvey occur in the middle of the third page.

20 HARVEY, William. Exercitationes de Generatione Animalium was the original version in Latin written in 1651 (London). The English version, Anatomical Exercitations Concerning the Generation of Living Creatures was published in 1653 and contained the dedicatory poem by Dr. Martin Lluellyn.

21 LLUELYN, Martin. (1653) Dedicatory Poem in HARVEY, W (1653) op. cit. (n.20) lines 61-62.

22 Ibid, lines 5-6 and 9 - 10 and 14 - 18.


33 ANON "Poetry of Medicine." Medical Bookman, 2, 411, 1948.


35 COWLEY, Abraham (1663) Ode Upon Dr Harvey, lines 10-36. (It is interesting that Cowley also wrote another poem, Elegy on Mr William Harvey, an unrelated man of the same name, with which the poem referred to might easily be confused.)

36 Ibid, line 54.

37 Ibid, lines 59-73.


43 SHUGG, Wallace, op.cit. (n.42) p. 189.


Biography

John Riddington Young is a consultant otorhinolaryngologist, working in North Devon. He has recently completed a research degree (M.Phil.) on the subject of "Medical Ideas in English Poetry to the end of the 17th Century". He has co-authored a book on the history of otolaryngology and last year he wrote (and illustrated ) a book on Devon Church history. His particular interest in ENT is the sexual aspects of the nose!
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Embaumeurs/médecins de l'Egypte ancienne

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