

The Echo of Harvey's *De Motu Cordis* (1628) 1628 to 1657

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ONLY five years after Harvey's death Thomas Fuller wrote in his *History of the Worthies of England*: "The Doctor, though living a bachelor, may be said to have left a hopeful son to posterity: his book 'De Circulatione Sanguinis,' which I may call his son and heir: the doctor living to see it at full age and generally received." A good many years after the publication there was more opposition to the new discovery than approval. True, Robert Fludd was quick to recognize it; probably he knew more about the publication of Harvey's book at Frankfurt than anybody else—did he not in fact recommend William Fitzer as publisher?

The opposition set in at once. The second edition of *De motu cordis*, Parisanus' *Exercitationes* (Venice, 1635; Keynes 2), is an anti-Harveian publication, as is the reprint under the title *Recentiorum disceptationes* (Leyden, 1647) usually quoted as the sixth edition (Keynes 6); it was enlarged by the indefatigable Primrose who reprinted all the texts opposed to the idea of the circulation.

During the first ten years after the publication, only Francis Glisson and John Wallis had publicly defended Harvey. George Joyliffe (1627-58), M.D. Cantab., Thomas Wharton (1614-73), physician to St. Thomas's Hospital, Thomas Willis (1621-75), M.D. Oxon, Samuel Collins (1617-85) who studied at Leyden and took his M.D. at Cambridge in 1648, and the other Samuel Collins (1618-1710), the comparative anatomist—all the younger generation of learned doctors, even the famous Thomas Sydenham (1624-89)—remained mute as far as the great discovery was concerned. Besides Robert Fludd, Kenelm Digby (then an exile in Paris) was the first Englishman to write a favourable comment (1644). The tide, however, had turned with the publication of Descartes' *Discours de la Méthode* (1637). Most of the dates given are well known, and the 'cognoscendi' will find only a few new tiny silver bells tinkling with the praise of the great man.

* London, England.

1629

FLUDD, Robert (1574-1637). *Medicina Catholica*. Frankfurt, William Fitzer, 1629. The theory of the circulation of the blood is definitely accepted. (See Pagel, W. Religious motives in medical biology. *Bull. Hist. Med.*, 1935, 3, 277.)

1630

First printed adverse notice of Harvey's work

PRIMROSE, James (c. 1598-1659). *Exercitationes et animadversiones in librum G. Harveii de motu cordis*. . . . London, 1630. (Osler* 724.) In December 1629 Harvey had examined and passed Primrose as a licentiate of the College of Physicians.

c. 1630

COLLINS, John (1572-1634), Regius Professor of Physick, Cambridge, from 1626 to 1634, takes no notice of Harvey.

1631

First favourable notice in print

FLUDD, Robert. *Integrum morborum mysterium*. Frankfurt, 1631. (Page 11.)

1632

Second adverse notice

WORM, Ole (1588-1654). *Controversiarum medicarum exercitatio sexta. Controversia V. Copenhagen, 1632*. A good Galenist, Worm presents a series of careful arguments against Harvey's work. (See Gotfredsen, Edv. The reception of Harvey's doctrine in Denmark. *Acta med. scand.*, 1952, 142, suppl. 266, 75-86.)

1634

READ, Alexander (d. 1641), anatomy lecturer, Barber Surgeons' Hall, from 1632. *A manuell of the anatomy of the body of man*. London, 1634. (See *The Library*, 1953, 5th ser. 8, 201; this first edition is not in the STC.) Harvey is ignored; only in the 5th edition is notice taken of him. (See 1655.)

1635

PARISANO, Emelio (1567-1643). *De cordis et sanguinis motu*. . . . Venice, 1635. (Keynes 2.)

GASSENDI, Pierre (1592-1655). *De septo cordis pervio, observatio*. In: Severinus, Pinaeus. *Opusculum physiologum et anatomicum in duos libellos distinctum*. Leyden, 1650, p. 261. Gassendi's letter to Peiresc on Primrose's *Animadversiones*, 1630, was written 27 Oct. 1635 in defense of Harvey. (See Osler 726 and 6765.)

1636

HOFMANN, Caspar (1572-1648), a pupil of Fabricius ab Aquapendente at Padua, M.D. Basel, 1605, and professor of medicine at Altdorf, was not convinced of the circulation by Harvey's experiments. Harvey in a letter dated Nuremberg, 20 May 1636, offered to prove to Hofmann the validity of the circulation. (Willis, p. 216; Power, pp. 113-4.)

* For abbreviations of various bibliographical references, see end of paper.

[ENT, George.] *Laureae Apollinari*. Padua (1636). Collection of congratulatory verses addressed to Ent when he received his M.D. at Padua. First poem by Johannes Rhode of Copenhagen (c. 1587-1659; see Hirsch, *Aerzte Lexikon*, 1887, vol. 5, p. 6) refers to Harvey and the circulation.

1636-38

GLISSON, Francis (1597-1677), Regius Professor of Physick in Cambridge, read a dissertation on the circulation defended by John Wallis. Osler in his *Harveian Oration* of 1906 dated it in the "early thirties," but the date can only be 1636-38 when Glisson was there. See Bayon, p. 89. See also Wallis, 1641.

1637

DESCARTES, René (1596-1650) in his *Discours de la méthode pour bien conduire sa raison* (Leyden, 1637, p. 51) accepted the main principles of the circulation. He had read *De motu cordis* in 1632. (See Gilson, E. *Etudes de philosophie médiévale. Descartes, Harvey et la scolastique*. Strasbourg, 1921.)

VESLING, Johann (1598-1649). Letter to Harvey, criticizing Primrose and Parisanus. (Printed in *Observationes anatomicae et epistolae medicae ex schedis posthumis, selectae et editae à Th. Bartholino*. The Hague, 1640; reprinted Copenhagen, 1644.)

VESLING met Harvey during his Continental tour when attending the Duke of Lennox. His two letters of 1637 to Harvey are well known (see Willis, pp. 216ff.; see also Liceti, Fortunio. *De motu sanguinis: origine nervorum: . . . Quarto-quaesitis per epistolas clarorum virorum responsa*. Udine, 1647. Contains Vesling's "Responsio"). Liceto was an early opponent of Harvey (see next entry and Bayon, p. 93) but came round in time after long correspondence with famous physicians.

LICETI, Fortunio (1577-1657), disagrees with Harvey in a letter to Thomas Bartholin; printed in Bartholin's *Epistolarum medicinalium Centuria I & II*, Copenhagen, 1663.

BEVERWIJCK, Jan van (1594-1647), wrote two letters to Harvey from Dordrecht, dated 19 December 1637 and 16 September 1638. See his *Exercitatio in Hippocratis aphorismum de calculo. Accedunt ejusdem argumenti doctorum epistolae*. Leyden, 1641, pp. 190-9. There is also a letter from Harvey to Beverwijck dated London, 20 April 1638. These letters were not reprinted by Willis.

1639

DRAKE, Roger (1608-69). *Disputatio medica de circulatione naturali seu cordis et sanguinis motu circulari pro cl. Harveio*. Read at Leyden, Jan de Wale (Walaëus), Drake's professor, being President. The Thesis was printed the next year, Leyden, 1640.

PRIMROSE, James. *Animadversiones in Iohannis Walaëi (Drake) disputationem quam pro circulatione sanguinis proposuit*. Amsterdam, 1639. (Reprint; see Keynes 3.)

BOË, Frans de le (SYLVIUS, Franciscus, 1614-72), gave full recognition to the circulation in his lectures in 1639. (Printed: *Disputationes medicae*. Amsterdam, 1663.)

FOLLI, Cecilio (1615-60). *Sanguinis à dextro in sinistrum cordis ventriculum defluentis facilis reperta via*. Venice, 1639. "The foramen ovale

question." Harvey deserved credit, he said, for reviving Galen's recognition of the circulation which had fallen into oblivion.

1640

GASSENDI, Pierre. *De septo cordis pervio observatio*. In: Pineau, Severin. *De virginitatis notis*. Leyden, 1640. "The foramen ovale question." Here Gassendi criticized Harvey adversely. (See Osler 726, 3680.)

REGIUS, Henry (ROY, Hendrijk du, 1598-1679), defended the thesis of Joa. Haymann: *Disputatio medico-physiologica pro sanguinis circulatione*. Utrecht, 1640.

PRIMROSE, James *Animadversiones in theses quas pro circulatione sanguinis Henr. Regius proposuit*. Leyden, 1640. (See Keynes 3.)

REGIUS, Henry. *Spongia qua eluuntur sordes animadversionum qua J. Primrosius*. . . . Utrecht, 1640. Reprinted Keynes 3. (See Osler 727.)

PRIMROSE, James. *Antidotum adversus spongiam venenatam Henrici Regii*. Leyden, 1640. Reprinted 1644. Sometimes found with Keynes 3. See Osler 725.

First German acknowledgment

CONRING, Hermann (1606-81). *De sanguinis generatione et motu naturali; opus novum*. Helmstadt, 1640. These eight dissertations were read by Conring while professor at Helmstadt; they were printed there in 1643. Conring was the first German physician to acknowledge Harvey. (See Osler 732.)

WORM, Ole (1588-1654). Letter of 11 May 1640 to T. Bartholin against Harvey, "An Pygmæi sind Dæmones." Printed in Bartholin, *Epist.* VI, p. 16.

1641

WALE, Jan de (WALAEUS, J., 1604-49). *Epistolae duae: de motu chylis et sanguinis ad Thomam Bartholinum*, dated Kalends of December 1640. In: Bartholin, Caspar, 1585-1629. *Institutiones anatomicae*. Editae a Thoma Bartholin. Leyden, 1641. He proved by experiments on animals the correctness of the Harveian doctrine. Often reprinted; see Osler 728-30.

DRAKE, Roger. *Vindiciae contra animadversiones D. D. Primrosii*. London, 1641. (Wing D 2132.)

ENT, Sir George (1604-89). *Apologia pro circulatione sanguinis, qua respondetur Aemilio Parisano, medico Veneto*. London, 1641. Reprinted, 1685. Osler 731. Wing E 3135.

WALLIS, John (1616-1703), states in a letter to Dr. Tyson that "Dr Glisson (who was then our Publick Professor of Physick, and under whom I kept, as they call it, a Physick Act) hath since told me, that I was the First of all his Sons, that did (in a publick Disputation) maintain Dr Harvey's Circulation of the Blood, in the year 1641" (*Phil. Trans.*, 1700-01, 22, 769). (See Glisson, 1636-38.)

1642

First acknowledgment in Italy

TRULLIUS, Giovanni (1598-1661), M.D. and physician to Pope Urban VIII (see Kaestner, *Medizinisches Gelehrten Lexikon*, p. 865) openly defended the circulation. See: Sinibaldi, G. B. *Geneanthropeia sive de hominis generatione*. Rome, 1642, Lib. V, Cap. XIV, co. 637. Sinibaldi's book was

reprinted at Frankfurt in 1669. (Willis, p. 253; Bayon, p. 95, quotes only the 1669 edition.)

BARTHOLIN, Thomas (1616-80). Letter of 14 July 1642 to Harvey, "Dubia quædam contra circulationem sanguinis." In *Bartholin, Epist. XXIII*, pp. 105-7.

1643

SEVERINO, Marco Aurelio (1580-1656). Letter dated Ides of April from Naples to T. Bartholin, "De Harveio iudicium," in which Severino is critical of Harvey. In *Bartholin, Epist. XXXI*, pp. 127-8.

BARTHOLIN, Thomas. Letter of 8 May 1643 to Severino defending Harvey, "De pustulis lucentibus, & viperis." In *Bartholin, Epist. XXXIV*, pp. 132-6; see p. 136.

BARTHOLIN, Thomas. Letter of 18 June 1643 to Ole Worm, "De lucis origine et circulatione nova Liceti." In *Bartholin, Epist. XXX*, pp. 124-6.

WORM, Ole. Letter of 7 July 1643 to T. Bartholin, "De circulatione dubia. . . ." In *Bartholin, Epist. XXXVIII*, pp. 172-4.

LICETI, Fortunio. Long letter of 13 July 1643 to T. Bartholin, "De duplici sanguinis euripo." In *Bartholin, Epist. XXXVII*, pp. 149-72.

BARTHOLIN, Thomas. Letter of 13 August 1643, "Dubia de luce & circulatione soluta," answering Worm's letter of 7 July. In *Bartholin, Epist. XXXIX*, pp. 175-7.

1644

First favourable comment to be printed in English

DIGBY, Sir Kenelm (1603-65). *Two treatises*. . . . Paris, 1644. Pages 235, 238 are on the circulation. See Fulton, J. F. *Sir Kenelm Digby*. New York, 1937.

BEVERWIJCK, Jan van. *Epistolicae quaestiones, cum doctorum responsis*. Rotterdam, 1644. Letters of Descartes on the circulation, pp. 118-49. (Osler, 722, 723, 2030.)

PLEMP, Vopiscus Fortunatus (1601-71). *Fundamenta medicinae libri VI*. Louvain, 1644. On p. 126 Plempe acknowledged that Harvey was right; he was at first an opponent. (Willis, p. 254, quotes 1652 edition.)

Before 1645

SCULTETUS, Joannes (1595-1645), was a pupil of Fabricius ab Aquapendente at Padua and received his M.D. in 1621. I cannot verify D. F. Harris' quotation that Scultetus mentioned "Harvey has shown that blood to be the chief principle of the microcosm. . . ." (*Proc. XVIIth int. Congr. Med.*, 1913, hist. sect., 351-6.)

1645

LEICHNER, Eckard (1612-90). *De motu sanguinis exercitatio anti-Harveiana*. Arnstadt, 1645. Reprinted: Erfurt, 1650; Jena, 1653; Arnstadt, 1665. Leichner was professor of medicine in Erfurt and later town physician there. Bayon, p. 91.

1647

S., S. *Discours sceptique sur le passage du chyle, et sur le mouvement de coeur. Où sont touchées quelques difficultés sur les opinions des veines lactées, et de la circulation du sang*. Leyden, 1648. The little book is dated at the end from Leyden, 15 October 1647. Compare Osler 722 (3), 723.

1648

BACK, Jacobus de (fl. 1617). *Dissertatio de corde*. Rotterdam, 1648. See Osler, note to 735 and 695; Willis, p. 251, quoting Amsterdam 1649 edition. Translated into English, 1653: Osler 737.

RIOLAN, Jean, *fls* (1580-1657). *Encheiridium anatomicum*. Paris, 1648. To this Harvey replied with the *Exercitatio anatomica de circulatione sanguinis*. Cambridge, 1649 (Keynes 30, 31).

1649

First Spanish recognition

BRAVO de SOBREMÓNTE, Gaspar (1610-83). *Resolutionum et consultationum medicarum universam totius philosophiae doctrina*. Valladolid, 1649. (See Izquierdo, J. J. *Harvey, iniciator del metodo experimental*. Mexico, 1936, pp. 207 ff.; also Bayon, p. 100.)

RIOLAN, Jean, *fls*. *Opuscula anatomica nova. . . Instauratio magna . . . de motu circulatorio sanguinis in corde*. London, 1649. (Osler 733. Wing R 1524.)

1649?

RIVIERE, Lazare (Riverius: 1589-1655), "publicly defended [at Montpellier] and taught the circulation of the blood, a candour for which he was by and by summoned by an adherent of the old school to resign his chair." (Willis, p. 251.) But where is it printed?

1650

SLEGEL, Paul Marquart (1605-83). *De sanguinis motu commentatio*. Hamburg, 1650. Slegel was a graduate of Padua. Harvey was well pleased with this treatise (see letter of March 1651; Willis edition of Harvey's *Works*, p. 596).

1651

HIGHMORE, Nathaniel (1613-85). *Corporis humani disquisitio anatomica*. The Hague, 1651. This is the first English anatomical work in which the circulation was fully recognized.

BARTHOLIN, Thomas. *Anatomia, ex Caspari Bartholini parentis institutionibus . . . tertium ad sanguinis circulationem reformata*. Leyden, 1651. (Willis, p. 253.)

PECQUET, Jean (1622-74). *Experimenta nova anatomica*. Paris, 1651. (Willis, p. 253.)

1652

MARCHETTI, Domenico (1626-88). *Anatomia: cui responsiones ad Riolanum . . . contra Veslingium additae sunt*. Padua, 1652. "Foramen ovale question." The mistake of Folli (1639) is corrected. (Willis, p. 256.)

RIOLAN, Jean, *fls*. *Opuscula anatomica, varia, et nova. Imprimis de motu sanguinis. . .* Paris, 1652. (Osler 734. Willis, p. 249.)

RUDBECK, Olaf (1630-1702). *De circulatione sanguinis*. Uppsala, 1652. In support of Harvey. Bayon, p. 95.

POWER, Henry (1623-68). Manuscript notebook, "Circulatio sanguinis" (B.M., Sloane MS 1343). "Amongst all the rabble of his [Harvey's] antagonists, we see not one that attempts to fight him at his own weapon, that is

by sensible and anatomical evictions to confute that, which he has by sense and autopsy so vigorously confirm'd." (Rolleston, p. 248.)

1653

ROLFINK, Werner (1599-1673). *Dissertatio de hepate ex veterum et recentiorum propriisque observationibus . . . et ad circulationem accomodata*. Jena, 1653. (Bayon, pp. 90-1.)

RIOLAN, Jean, fils. *Manuel anatomique et pathologique . . . de toute l'anatomie. Augmentée de la sixième partie, sur . . . la circulation du sang*. Paris, 1653. Pages 696-738: Riolan's last word in his dispute with Harvey.

1654

WEBSTER, John (clerk in Holy Orders). *Academiarum examen*. . . . London, 1654. (Wing W 1209.) Page 74: ". . . our never sufficiently honoured Countryman Doctor Harvey, discovered that wonderful secret of the bloods circulary motion."

1655

BARTHOLIN, Thomas. *Defensio vasorum lacteorum . . . Accedit cl. v. Guilielmi Harvei de venis lacteis sententia expensa ab eodem Th. Bartholino*. Copenhagen, 1655. Page 179: Bartholin praises Harvey for the discovery of the circulation, but he neglected "chyliferarum venarum pretium."

HARVEY'S letters to Dr. J. D. Horst, physician at the Court of Hesse-Darmstadt, of 1 February and 13 July 1655. Printed in Horst's *Manuductio ad medicinam*. Ulm, 1660, pp. 59-82. Reprinted by Willis in *Harvey's Works*, pp. 612-15.

NARDI, Giovanni (fl. 1634). *Noctes geniales, annus primus*. Bologna, 1655. (Published also with dates of 1656 and 1657.) Pages 712-46: discussion of Harvey's discovery.

PEIRESC, Nicolas Claude Fabri de (1580-1637). Gassendi, Pierre. *Viri illustris Nicolai Cl. Fabricij de Peiresc . . . vita*. Hague, 1655. For passages referring to Harvey and the circulation, see Osler 6764-5. Translated into English, 1657.

READ, Alexander. *Manual of anatomy*. London, 1655. This, the fifth edition, is the first in which notice of Harvey is taken. Read was one of the seven surgeons who in the presence of Harvey examined the four Lancashire witches on 2 July 1634.

c. 1655

WINSTON, Thomas (1575-1655). *Anatomy lectures at Graham Colledge*. London, 1659. (Wing W 3078.) Winston mentions Harvey, but not the circulation; he was a censor of the College of Physicians and had studied at Padua. He "must have been present at Harvey's demonstrations" (Rolleston, p. 250; Bayon, p. 83).

1656

COLLOP, John (1630-60). *Poesis rediviva: or Poesie reviv'd*. London, 1656. See Poynter, F. N. L. An unnoticed contemporary English poem in praise of Harvey and its author, John Collop, M.D. *J. Hist. Med.*, 1956, 11, 374-83.

ROLFINK, Werner. *Dissertationes anatomicae*. Nuremberg, 1656. Books V and VI. (Bayon, p. 91.)

1657

*Inscription on Harvey's tombstone on the West wall of the
North transept of the church at Hempstead, Essex*

(Translation from the Latin ascribed to Sir George Ent)

William Harvey, at the mention of whose honourable name all academies rise up out of respect, who was the first after many thousand years to discover the daily movement of the blood, and so brought health to the world and immortality to himself, who was the only one to free from false philosophy the origin and generation of animals, to whom the human race owes its acquirements of knowledge, to whom medicine owes its very existence.

ABBREVIATIONS

- Bartholin. BARTHOLIN, Thomas. *Epistolarum medicinalium Centuria I & II*. Copenhagen, 1663. (All references are in Centuria I.)
- Bayon. BAYON, H. P. William Harvey, physician and biologist: his precursors, opponents and successor. Part I. *Ann. Sci.*, 1938, 3, 59-118.
- Keynes. KEYNES, Sir Geoffrey. *A bibliography of the writings of Dr William Harvey 1578-1657*. 2d ed. Cambridge, 1953.
- Osler. OSLER, Sir William, Bt. *Bibliotheca Osleriana*. Oxford, 1929.
- Power. POWER, Sir D'Arcy. *William Harvey*. New York, 1897.
- Rolleston. ROLLESTON, Sir Humphry. The reception of Harvey's doctrine of the circulation. In: *Essays on the history of medicine presented to Karl Sudhoff*. C. Singer and H. E. Sigerist, Eds. London, 1924, pp. 247-54.
- Willis. WILLIS, R. *William Harvey. A history of the discovery of the circulation of the blood*. London, 1878.
- Wing. WING, D. G. *Short-title catalogue of books printed in England . . . 1641-1700*. New York, 1945-51. 3 vols.