

Blood and Justice

The seventeenth-century Parisian doctor who made
blood transfusion history



Pete Moore



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Published in 2003 by John Wiley & Sons Ltd, The Atrium, Southern Gate, Chichester,
West Sussex PO19 8SQ, England

Telephone (+ 44) 1243 779777

Email (for orders and customer service enquiries): cs-books@wiley.co.uk

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John Wiley & Sons Inc., 111 River Street, Hoboken, NJ 07030, USA

Jossey-Bass, 989 Market Street, San Francisco, CA 94103-1741, USA

Wiley-VCH Verlag GmbH, Boschstr. 12, D-69469 Weinheim, Germany

John Wiley & Sons Australia Ltd, 33 Park Road, Milton, Queensland 4064, Australia

John Wiley & Sons (Asia) Pte Ltd, 2 Clementi Loop #02-01, Jin Xing Distripark, Singapore 129809

John Wiley & Sons Canada Ltd, 22 Worcester Road, Etobicoke, Ontario, Canada M9W 1L1

British Library Cataloguing in Publication Data

A catalogue record for this book is available from the British Library

ISBN 0-470-84842-1

Typeset in 9.5/13pt Photina by Mathematical Composition Setters Ltd, Salisbury, Wiltshire
Printed and bound in Great Britain by Biddles Ltd., Guildford and King's Lynn
This book is printed on acid-free paper responsibly manufactured from sustainable forestry in which at least two trees are planted for each one used for paper production.

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Note on sources

All of the people who have walked through the pages of this book are authors of, or are mentioned in, research papers and letters written in the 1660s. This book does not set out to be a traditional scholarly work linking all text to the relevant references, but all of the factual material relating to the experiments with blood and the circulation were drawn from the primary sources listed in the Bibliography at the back of the book.

Throughout this book, quotes from these sources have been ‘translated’ into a more modern version of English. The intention has been to retain the overall style of the entries, while making them easier to read.

Acknowledgements

*A*s far as I can see, no book written by a single person without the help of others would be worth reading. I'm therefore pleased to acknowledge that I did not write this book alone, and that I am extremely grateful to those who helped me out along the way. The historical scholars A. Rupert Hall and Marie Boas Hall gave me a much needed injection of enthusiasm halfway through the writing, as well as lending me the wealth of their historic know-how, and Professor Michael Hunter pointed me towards some great leads at the beginning of the project as well as commenting on some of the script. In addition, consultant haematologist Dr John Amess helped tidy-up my understanding of the science of blood transfusion reactions.

Researching the material for this book involved working in a number of archive libraries, and I would particularly like to thank the staff in the Royal Society library for their friendly assistance in finding ancient documents. Finally, my prime reader Adèle, agent Mandy Little, commissioning editor Sally Smith, copy-editor Caroline Ellerby, production editor Amie Jackowski Tibble and picture-researcher Benjamin Earl all worked hard to give you, the reader, a book that is worth picking up and not putting down until it is finished. Thank you.

'Cast', and people mentioned, in order of appearance

Chapter 1

Jean-Baptiste Denis (c1640 – 1704)

Mathematician, astronomer, philosopher and part-time medic. History records him as the first person to transfuse blood into a human being.

Louis XIV (1638 – 1715)

The 'Sun King' of France who came to the throne at the age of five and oversaw an exciting phase of French artistic and academic life.

M. Lamoignon

Son of the First President of the Parliament of Paris, Guillaume de Lamoignon (1617 – 1677) and Denis' lawyer.

Henri Louis Habert de Montmor (c1600 – 1679)

Wealthy French patron of early scientific research.

Ducs d'Enghien

French dignitary.

Louis Charles d'Albert Duke de Luynes (1620 – 1690)

Distinguished writer with interests in natural philosophy as well as being a French dignitary.

Charles de Chaulnes (1625 – 1698)

French dignitary.

René Descartes (1596 – 1650)

French philosopher and mathematician, usually seen as the father of modern philosophy.

Girard Desargues (1591 – 1661)

French mathematician.

Pierre Gassendi (1592 – 1655)

French mathematician, physicist and religious philosopher who was a strong advocate of the experimental approach to science. He was an early critic of Descartes.



Blaise Pascal (1616–1662)

French mathematician, physicist and philosopher who pioneered the theory of probability.

Jean Chapelain (1595–1674)

French poet and critic, and original member of the Académie Française. By all accounts his poetry was poor.

Paul Emmercy (died 1690)

Surgeon who worked as Denis' technician in developing ways of performing blood transfusions.

Antoine Mauroy (c1633–1668)

French house servant who in all probability was mad from having syphilis, and died after receiving transfused blood.

Perrine Mauroy

Antoine's wife.

Homer (eighth century BC)

Greek epic poet who is believed to have written the *Iliad*, which tells the story of the fall of Troy, and the *Odyssey*, which tells of the subsequent wanderings of Odysseus.

Cain and Abel

Sons of Adam and Eve described in the Biblical book of Genesis. Cain kills Abel when he becomes jealous that God accepts Abel's meat sacrifice and dismisses his sacrifice of grain.

Asclepius (thirteenth century BC)

Ancient Greek physician who became revered as a god. His daughter, Hygeia, gave her name to the word 'hygienic'.

Pythagoras (c560–480 BC)

Mathematician, astronomer and mystic who was born on the Greek island of Samos and founded a secret society at Croton in southeast Italy.

Empedocles (fifth century BC)

Greek philosopher and poet from Sicily, who also worked as a doctor and statesman.

Plato (c428–348 BC)

A pupil of Socrates, and now seen as one of the most important philosophers of all time.



Hippocrates (c460–377 BC)

Greek doctor working on the island of Kos who is regarded as the father of medicine. He formed a code of practice under which medical practitioners could work ethically – the Hippocratic oath.

Aristotle (384–322 BC)

Greek philosopher who came to be one of the most important and influential figures in Western thinking.

Polybus (c205–123 BC)

Probably Hippocrates' son-in-law and author of *De Natura Hominis*, an ancient medical textbook.

Anton van Leeuwenhoek (1632–1723)

Dutch fabric merchant who had a passion for creating and using early microscopes. He created some 550 lenses, many of which were of very high quality. He was elected as a Fellow of the Royal Society in 1680.

Claudius Galen (c130–201)

Greek philosopher and anatomist who, when working in Rome, developed a model demonstrating what blood was and how it worked.

Marcus Aurelius (121–180)

Roman Emperor.

Chapter 2

William Harvey (1578–1657)

Son of a farmer who married the daughter of the King's physician and discovered that blood circulates around the body.

Andreas Vesalius (1514–1564)

Flemish anatomist, the son of a pharmacist, who after studying at Louvain, Paris and Padua became the founder of modern anatomy.

Johann Stephan von Calcar (1499–1546)

Artist and illustrator who worked with Andreas Vesalius.

Michael Servetus [alias Michael Villeneuve] (1511–1553)

Spanish theologian and physician who was born in Tudela but worked largely in France and Switzerland. He got into trouble because he denied the Trinity and the deity of Jesus Christ and was burnt at the stake by Calvin.



John Calvin (1509 – 1564)

Born in France, he became the chief Reformer of Geneva who is best known for his teachings on the absolute authority of God.

Matteo Realdo Colombo (1516 – 1559)

Italian physician who described the anatomy of the heart and the large blood vessels that are attached to it. He was the first person to point out that the heart's valves were one-way devices.

King James I of England (1566 – 1625)

Son of Mary Queen of Scots. He became King James VI of Scotland in 1567, but was also King James I of England from 1603.

King Charles I (1600 – 1649)

Second son of James I of England, and beheaded after the English Civil War.

Thomas Howard, Earl of Arundel (1586 – 1646)

English statesman who is best remembered for his art collections, including the Arundel Marbles that his grandson gave to the University of Oxford.

Ferdinand II (1578 – 1637)

Born in Graz, Austria, the Holy Roman Emperor from 1619.

John Aubrey (1626 – 1697)

Anecdotalist and gossip who recorded highly personal views about notable people in his book *Brief Lives*. He became a Fellow of the Royal Society in 1663.

Hieronymus Fabricius (c1533 – 1619)

Italian anatomist born in Aquapendente who became professor of anatomy at Padua. His work was heavily based on Galenic and Aristotelian understandings of how the body works.

Robert Boyle (1627 – 1691)

Predominantly interested in what is now known as chemistry, this Irishman was one of the founding fathers of modern science. He was elected as a Fellow of the Royal Society in 1663.

Galileo Galilei (1564 – 1642)

Italian astronomer and physicist whose meticulous work studying planets and stars with his telescope set new standards for investigation and observation of the universe, but also led him into conflict with church authorities.



Johannes Walaeus

Dutch anatomist and founder of experimental physiology in mainland Europe. He followed Harvey's experiments and descriptions of the circulation and added a few of his own. Walaeus was more concerned about the chemical aspects of blood than was Harvey.

Caspar Hoffmann (1572–1648)

German physician living in Nuremberg. He believed that Aristotle had given a better account of the way that the body worked than had Galen, and held views very similar to Harvey's in terms of the way he thought the heart worked.

Marcello Malpighi (1628–1694)

Born near Bologna, he studied medicine and became professor of theoretical medicine at Pisa. He was an extraordinary lecturer in theoretical medicine at Bologna and the first professor of medicine at Messina. In 1691 he became chief physician to Pope Innocent XII. He pioneered the use of microscopes and became a Fellow of the Royal Society in 1669.

Henry Oldenburg (1619–1677)

German émigré to England who became the first secretary to the Royal Society.

Chapter 3

Francis Potter (1594–1674)

Reclusive Church of England clergyman and inventor who became a Fellow of the Royal Society in 1663.

Publius Ovidius Naso (Ovid) (43 BC – AD 17)

Having been trained in law in Rome, he gave his whole energy to poetry and wrote more poetry than any other Latin poet.

Ralph Bathurst (1620–1704)

President of Trinity College, Oxford, from 1664, he was a physician to the Navy and Chaplain to the King. He was elected a Fellow of the Royal Society in 1663.

Christopher Wren (1632–1723)

Famous architect who started out working in astronomy and anatomy, and was a founder member of the Royal Society. He was buried in his largest building, St Paul's Cathedral in London.



John Wilkins (1614– 1672)

One of the original members of the Royal Society, this clergyman was fascinated by mathematics.

Oliver Cromwell (1599– 1658)

Lord Protector of England from 1653 until his death in 1658.

Richard Cromwell (1626– 1712)

Briefly succeeded his father as Lord Protector of England but was forced to abdicate in 1659.

John Crosse (c1620– fl.1693)

Boyle's Oxford landlord.

William Petty (1623– 1687)

English philosopher, physician and founder member of the Royal Society who is best known for his contribution to statistics.

Robert Wood (c1621– 1685)

Physician who researched areas of mathematics and was elected as a Fellow of the Royal Society in 1681.

Henry Pierrepoint (1606– 1680)

First Marquis of Dorchester.

Timothy Clarke (c1620– 1672)

Educated at Balliol College, Oxford, he worked as a physician in London, living at St Martin-in-the-Fields. He was an original Fellow of the Royal Society.

Richard Lower (1631– 1691)

Elected to the Royal Society in 1667 after assisting Thomas Willis in his work and pioneering methods for transfusing blood between animals.

Thomas Willis (1621– 1675)

Physician elected a Fellow of the Royal Society in 1663.

Peter Sthael (– 1675)

German chemist and friend of Robert Boyle.

Samuel Pepys (1633– 1703)

Famous diarist who worked as a civil servant and became a member of the Royal Society in 1665.



Charles II (1630–1685)

After returning from exile in France, he became King of Scotland and England in 1660.

Anthony Wood (1632–1695)

English antiquary who studied at Merton College, Oxford, from 1647 to 1652.

Johann Sigismund Elsholtz (1623–1688)

German physician who wrote a text book showing how to inject solutions into the bloodstream.

Chapter 4

Francis Bacon (1561–1626)

London-born philosopher and statesman who was educated at Trinity College, Cambridge, before studying law at Gray's Inn, London. He insisted on the need to substantiate an argument with discernible facts, rather than resting on the authority of ancient thinkers.

Ismael Boulliau (1605–1694)

French mathematician and astronomer.

Peiresc and Pierre Dupuys

French seventeenth-century academic historians.

Samuel Sorbière (1615–1670)

French clergyman and physician who was educated by his uncle, Samuel Petit, in Paris, the subject of jealousy when he was elected to the English Royal Society in 1663.

François Bernier (1620–1688)

French physician whose letters are translated into English and published as 'Travels in the Mogul Empire AD1658–1668'. This book gives an insight into life in India during the Mogul era.

Aurangzeb (1658–1707)

Indian Moghul emperor who alienated the Hindu members of his empire and ended up living in exile.

Robert Hooke (1635–1703)

Born on the Isle of Wight, he worked as an architect and performed experiments in physics. An original member of the Royal Society.



Thomas Aquinas (1225 – 1274)

Italian scholar, philosopher and theologian, who reconciled Aristotle's science with Christian doctrine.

John Wallis (1616 – 1703)

Clergyman and mathematician who was an original Fellow of the Royal Society.

Jonathan Goddard (c1617 – 1675)

Physician who became closely associated with Cromwell, and was a founder Fellow of the Royal Society.

Robert Moray (1608 – 1673)

He fought as a soldier and worked as a courtier and diplomat. At the same time he performed research in chemistry and studied metals, minerals and natural history. A founder Fellow of the Royal Society.

Gilles Personne de Roberval (1602 – 1675)

French mathematician who began studying at the age of 14. A founding member of the Académie Royale des Sciences.

Voltaire (1694 – 1778)

Satirical writer who became a member of the Royal Society in 1743.

Chapter 5

Johann Daniel Major (1634 – 1693)

German physician whose medical textbook included instructions on how to inject solutions into patients.

Daniel Coxe (1640 – 1730)

By profession an adventurer, but also performed experiments in chemistry and medicine. He was elected a Fellow of the Royal Society in 1665 and made an Honorary Fellow of the Royal College of Physicians in 1680.

Thomas Coxe (1615 – 1685)

Having been the physician to the parliamentary army, he switched allegiance and in 1665 became a physician to the King. An original Fellow of the Royal Society.

William Croune (1633 – 1684)

Born in London, he worked as a physician in the city and was an original Fellow of the Royal Society.



Thomas Millington (1628–1704)

Oxford mathematician and a friend of Robert Boyle.

John Beale (1608–1683)

Clergyman who was Rector of Yeovil, Somerset, from 1660 to 1682, and was elected to the Royal Society in 1663.

Walter Charlton (1620–1707)

Born in Shepton Mallet, Somerset, a physician who researched areas of medicine and natural philosophy. An original member of the Royal Society.

Richard Zouche (1590–1662)

Oxford academic.

Lady Ranelagh (1614–1691)

Robert Boyle's sister.

Gilbert Sheldon (1598–1677)

Elected a Fellow of the Royal Society in 1665, at which point he was the Archbishop of Canterbury, a post he held from 1663 to 1677.

Elizabeth Billings (1640–1669)

Samuel Pepys' wife.

Thomas Shadwell (1642–1692)

Satirical playwright who wrote 13 comedies and three tragedies. Succeeded John Dryden as Poet Laureate in 1689.

Edmund King (1629–1709)

London surgeon who studied chemistry and had a passing fascination with blood transfusion.

Chapter 6

Claude Perrault (1613–1688)

Influential Parisian physician and one of the founding members of the Académie Royale des Sciences. In June 1667 he led a team of researchers invited to dissect a shark and a lion at the royal menagerie.

Louis Gayant (died 1673)

Parisian surgeon.



Isaac Newton (1642–1727)

Mathematician and natural philosopher who on two occasions was Member of Parliament for Cambridge University, was Master of the Mint from 1699 until his death, and elected a Fellow of the Royal Society in 1672.

Denis de Sallo (1626–1669)

Founding editor of the Parisian magazine, *Journal des Sçavans*.

Matthaeus Gottfried Purmann (1648–1711)

Surgeon who performed the first transfusion of blood into a human in Germany, taking the blood from a lamb.

Johann Scultetus (fl. 1682)

Dutch surgeon and anatomist.

Leonard Landois (1837–1902)

German physiologist who started looking for a scientific understanding of the reactions that occur when blood from different animals is mixed.

Karl Landsteiner (1868–1943)

Nobel Prize-winning scientist who discovered the concept of blood groups. He was elected a Fellow of the Royal Society in 1941.

Chapter 7

Dom Robert de Gabets (fl. 1667)

Benedictine friar who Denis claimed gave him the idea of transfusing blood.

Henry Bennet (1618–1685)

First Earl of Arlington, educated at Westminster School and Christ Church, Oxford. Retired to Suffolk after holding the post of Lord Chamberlain.

Oswald Mosley (1896–1980)

English politician who resigned from the Labour government to become leader of the British Union of Fascists. He had a vision of a politically and financially united Europe.

John Milton (1608–1674)

English poet who studied at Cambridge.

Richard Jones (1641–1712)

Robert Boyle's nephew who became the first Earl of Ranelagh.



Dorothy West (died 1665)

Oldenburg's first wife.

Dora Katherina (c1652–)

Oldenburg's second wife.

Joseph Williamson (1633– 1701)

Barrister, statesman, assistant to Lord Arlington, and an original Fellow of the Royal Society.

Henri Justel (1620– 1693)

Frenchman who switched nationality and became English in 1687. A frequent correspondent of Oldenburg and Boyle. Elected a Fellow of the Royal Society in 1681.

Seth Ward (1617– 1689)

Bishop of Salisbury who researched areas of astronomy and was an original Fellow of the Royal Society.

John Martin (fl. 1680)

Oldenburg's publisher.

Baron Bond (– 1667)

A Swedish nobleman who became ill while visiting Paris.

Christina Wasa (1626– 1689)

Queen of Sweden from 1640 until her abdication in 1654.

Pierre Michon Bourdelot (1610– 1685)

French doctor who worked for a time as physician to Queen Christina of Sweden.

Chapter 8

Arthur Coga (c1645– unknown)

First person in England to receive transfused blood.

Daniel Whistler (1619– 1684)

Physician educated at Trinity College, Oxford, and who worked in Oxford, London and Sweden. An original Fellow of the Royal Society, and died of pneumonia.

Philip Skippon (1641– 1691)

Elected a Fellow of the Royal Society in 1667, a virtuoso who travelled extensively with John Ray.



John Ray (1627 – 1705)

English clergyman, botanist, zoologist and entomologist who was elected a Fellow of the Royal Society in 1667.

Pope Innocent VIII (1432 – 1492)

Born Giovanni Battista Cibò, he had a chequered history as a youth, but was generally liked when he became Pope.

Abraham Myere of Balmes

Shadowy physician who appears to have offered medical advice to Pope Innocent VIII.

Marsilio Ficino (1422 – 1499)

Italian philosopher – head of the Platonic Academy in Florence.

Count Ferencz Nadasy

Elizabeth of Bathroy's husband.

Elizabeth of Bathroy (1575 – 1613)

Evil woman who decided that bathing in virgins' blood would maintain her beauty.

Dorottya Szentes and Darvula

Two of Elizabeth of Bathroy's servants.

Iilona Joo

Elizabeth of Bathroy's nurse.

Matthias II

King of Hungary from 1609 – 1619, excommunicated from Rome in 1609.

Andreas Libavius (1546 – 1616)

German chemist.

Pauli (Paolo) Manfredi (fl. 1668)

Italian researcher.

Johannes Colle (1558 – 1631)

Professor of medicine at Padua, Italy.

Francesco Folli (1624 – 1685)

Italian physician.

Georg Abraham Mercklino

German seventeenth-century physician who advocated blood transfusion.



Balthasar Kaufmann

Colleague of Gottfried Purmann.

Lorenz Heister (1683 – 1758)

German surgeon who worked in the battlefields before becoming professor of anatomy and surgery at the University of Altdorf in 1709, and later moved on to be the professor of medicine and botany. His book on surgery was translated into many languages, including Japanese.

Regner de Graaf (1641 – 1673)

Dutch anatomist who gave his name to Graafian follicles, the fluid-filled cavities left in the ovaries after they release eggs.

Johannes van Horne (1621 – 1670)

Dutch physician who worked with Graaf. His father was one of the first directors of the Dutch East India Company, and as such would have been highly influenced by the wars with England.

Fabritius

Physician working in Dantzig, Spain.

Carlo Fracassati

Italian anatomist working at Pisa.

Jean Dominique Cassini (1625 – 1712)

Italian investigator who had a go at transfusing blood and was elected a Fellow of the Royal Society in 1672.

Chapter 9

Denis Dodart (1634 – 1707)

Parisian physician from a wealthy background. His main work was entitled *Mémoires pour Servir a l'Histoire des Plantes*, and presented ideas on how speech was created in the mouth.

Pierre de Bourger (1698 – 1758)

Parisian physicist.

Guillaume-Hugues Vaillant (1619 – 1678)

Parisian churchman.

Monsieur de Veau

Parisian priest.



Steen Willadsen (1944–)

Dutch scientist who was the first person to produce a mammalian clone.

Monsieur Bonnet

Parisian priest called on to assess Mauroy's state of mind.

Chapter 10

Henry Sampson (1629–1700)

Nonconformist minister who had to leave his parish at St Michael's Framlingham because of his refusal to be ordained after the Restoration. Sent a letter to Edmund King in January 1668 replying to King's questions about blood transfusion.

Louis de Basril (16th – 17th century)

Parisian physician.

Claude Tardy (fl. 1667)

Parisian physician.

Louis Gadroy (1642–1678)

Parisian physician.

Pierre-Martin de la Martinière (1634–1676)

Outspoken opponent of blood transfusion who masterminded the attack on Denis' technique and wrote numerous pamphlets attacking Denis and his work.

George (Guillame) Lamy (1644–1683)

Parisian physician and opponent of Denis.

Jan Baptiste van Helmont (1579–1644)

Highly controversial physician who started to question ancient modes of thought regarding medical practice.

Paracelsus (1493–1541)

Maverick German alchemist and physician who challenged established beliefs, and who supposedly only lectured when he was half-drunk. His real name was Theophrastus Bombastus von Hohenheim, but he changed this to one implying that his work was beyond that of the Roman physician Celsus.



George Ent (1604– 1689)

Anatomist and physician who was an original Fellow of the Royal Society and became the president of the Royal College of Physicians in 1663.

Chapter 11

André D'Ormesson

Parisian magistrate.