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## WILLIAM HARVEY AND HIS CRITICS

### The Circulation of the Blood

Two Anatomical Essays by William Harvey, together with nine letters written by him. The whole translated from the Latin and slightly annotated by Kenneth J. Franklin. Pp. xxiii+184. (Oxford: Blackwell Scientific Publications, 1958.) 22s. 6d.

THE modern mind, trained to accept, at least tentatively, the latest scientific discovery, finds it hard to envisage a time when tradition was more highly regarded than truth. Yet it was so, even in the seventeenth century.

William Harvey, after demonstrating the circulation of the blood by experiments and by lectures for at least twelve years, published in 1628 his "Exercitatio anatomica de motu cordis et sanguinis in animalibus", often described as "the most important medical work ever written". Few believed Harvey's statements, and very few took the trouble to repeat his experiments in order to confirm or refute the new idea of a circulating blood-stream. Their minds were not attuned to the experimental method, of which Harvey was the first great exponent. Steeped in the teaching of Galen and the ancients, they failed to envisage "how such a circulation takes place without causing upset and mixing of the body's humours and destruction of traditional medicine", as Riolan expressed it. Any statement which contradicted the old and accepted views simply could not be true.

Harvey at first maintained a discreet silence and declined to be drawn into argument by his earlier critics. Only after a lapse of twenty-one years did he reply to the criticism of his friend Riolan in the "Two Anatomical Essays" now under consideration.

Jean Riolan, jun., of Paris, had sent Harvey a copy of his work on pathological anatomy, entitled, "Encheiridium anatomicum et pathologicum", which contained his criticism of Harvey's discovery. Unlike some of the earlier critics, Riolan was not abusive or disrespectful. Apparently seeking for a partial acceptance of the new idea which might satisfy the exponents of traditional medicine, Riolan did not wholly deny that the blood circulated, but he affirmed, or rather re-affirmed, the passage of the blood through the interventricular septum, and stated that the mesentery was devoid of any circulation. He produced no experimental evidence in support of his contention, and it is not surprising that this attempt to satisfy both sides really satisfied neither the critics nor the supporters of the new doctrine. Harvey begins his reply to Riolan with a graceful reference to the value of Riolan's book, mentioning his own interest in pathology, as shown in his writing on "medical anatomy", a work which appears to have been lost. He then proceeds to refute Riolan's statements, and to defend his original contention that "there is a circulation everywhere, and not restricted to certain parts". He admits that he has failed to discover the capillaries, but he now states,

as he did not in 1628, that the heart does not re-charge the blood with "innate heat" or "vital spirits", adding "Such spirits show a common subterfuge of ignorance". Harvey must have felt how obstinate were his old-fashioned opponents when he wrote, "How hard and difficult it is to teach those who have no experience the things in which they lack such or have no sensible knowledge".

The eight letters which follow the anatomical essays to Riolan, though much shorter, are no less interesting. All were written during the last few years of Harvey's life, and they show his nobility of character and his gift of kindly friendship. To Nardi he wrote in 1653, "I am myself almost an octogenarian, and, although my physical powers are tottering with my body broken, yet with my mind active I give myself up gladly to studies of this sort", and to his Dutch friend, Jan Vlackveld, just before his death in 1657, he confessed himself "ripe in years but also—let me admit—a little weary" and "entitled to ask for an honourable discharge".

Prof. Kenneth Franklin, who embodies the unusual combination of a master of Latin and a professor of physiology (at St. Bartholomew's Hospital, where Harvey himself taught), made a most valuable contribution to the Harveian tercentenary celebrations last year by his translation of "De Motu Cordis" (see *Nature*, 180, 449; 1957). He has now added to his high reputation by giving us, in deft and elegant English, a modern translation of the essays to Riolan and the letters, under the title "De Circulatione Sanguinis", a fitting, and indeed essential, sequel to the earlier work, showing a more mature Harvey whose outlook had been ripened by years of further meditation and experiment.

"De Circulatione Sanguinis", 1649, is by no means a mere postscript to "De Motu Cordis", 1628, and perhaps it is unfortunate that the two books, bound together in what has been hitherto the standard translation by Robert Willis, now appear separately. Even the intelligent student, viewing them casually, might well regard them as the same book, so similar are they in format and title. The two are so intimately interwoven that they surely deserve to share one cover, and it is hoped they may do so in future editions. The Latin text forms the second half of the volume. Paper and printing are admirable, as also are the annotations and bibliography. Two rather rare illustrations show Riolan at work, and Harvey, in his later years, while a lovely coloured frontispiece of Charles, Prince of Wales, by William Dobson, commissioned by King Charles I and presented to Harvey, has been reproduced from the original painting in the Scottish National Portrait Gallery. Prof. Franklin has certainly revealed a new Harvey to the modern reader. His two delightful translations of the greatest of medical classics depict not only the discovery which inaugurated a new era in medicine but also the dawn of the experimental method and the demonstration of its value in the hands of the noble, erudite and intensely human William Harvey. DOUGLAS GUTHRIE