



Title page of the *Fabrica* (1543).

## TRANSLATIONS FROM THE *Fabrica* (1543)

In the translations from the *Fabrica* the foliation or pagination has been inserted within brackets, and where subheadings of chapters occur as marginalia these have been placed separately within the text.

### 1. THE PREFACE OF ANDREAS VESALIUS TO HIS BOOKS *De humani corporis fabrica* ADDRESSED TO THE DIVINE CHARLES, GREAT AND INVINCIBLE EMPEROR.<sup>1</sup>

Various things, most gracious Emperor Charles, very seriously hinder those investigating the scientific arts so that they are not accurately or fully learned, and I believe furthermore that no little loss occurs through the too-great separation that has taken place between those disciplines that complement one another for the fullest comprehension of a single art; even much more the very capricious division by practitioners of an art into separate specialties so that those who set the limits of the art for themselves tenaciously grasp one part of it while other things which are in fact very closely related are cast aside. Consequently they never demonstrate excellence and never attain their proposed end but constantly fall away from the true foundation of that art.

Passing over the other arts in silence, I shall speak briefly of that which concerns the health of mankind; indeed, of all the arts the genius of man has discovered it is by far the most beneficial and of prime necessity, although difficult and laborious. Nothing was able to plague it more than when at one time, and especially after the Gothic invasions and the reign of Mansor, King of Persia—under whom the Arabs lived, as was proper, on terms of familiarity with the Greeks—medicine began to be maimed by the neglect of that primary instrument, the hand, so that [the manual aspects of medicine] were relegated to ordinary persons wholly untrained in the disciplines subserving the art of medicine. Once there were three medical sects, that is, Dogmatic, Empirical, and Methodical, but their members consulted the whole art as the means of preserving health and driving away sicknesses. All the thoughts of each sect were directed toward this goal and three methods were employed: The first was a regimen of diet, the second the use of drugs, and the third the use of the hands. Except for this last, the other methods clearly indicate that medicine is the addition of things lacking and the withdrawal of superfluities; as often as we resort to medicine it displays its usefulness in the treatment of sickness, as time and experience teach, and its great benefit to mankind. This triple method of treatment was equally familiar to the physicians of each sect, and those using their own hands according to the nature of the sickness used no less effort in training them than in establishing a theory of diet or in understanding and compounding drugs.

In addition to the other books so perfectly composed by the divine Hippocrates, this is very clearly demonstrated in those *On the function of the physician*, *On fractures of bones*, and *On dislocations of joints and similar ailments*. Furthermore, Galen, after Hippocrates the prince of medicine, in addition to his occasional boast that the care of the gladiators of Pergamum was entrusted solely to

him, and that although age was already weighing him down it did not please him that the monkeys he was to dissect should be skinned by slaves, frequently assures us of his pleasure in the employment of his hands, and how zealously, like other Asiatic physicians, he used them. Indeed, none of the other ancients was so concerned that the treatment made with the hands, as well as that performed by diet and drugs, be handed down to posterity.

Especially after the devastation of the Goths when all the sciences, formerly so flourishing and fittingly practised, had decayed, the more fashionable physicians, first in Italy in imitation of the old Romans, despising the use of the hands, began to relegate to their slaves those things which had to be done manually for their patients and to stand over them like architects. Then when, by degrees, others who practised true medicine also declined those unpleasant duties—not, however, reducing their fees or dignity—they promptly degenerated from the earlier physicians, leaving the method of cooking and all the preparation of the patients' diet to nurses, the composition of drugs to apothecaries, and the use of the hands to barbers. And so in the course of time the art of treatment has been so miserably distorted that certain doctors assuming the name of physicians have arrogated to themselves the prescription of drugs and diet for obscure diseases, and have relegated the rest of medicine to those whom they call surgeons [fol. \*2v] but consider scarcely as slaves. They have shamefully rid themselves of what is the chief and most venerable branch of medicine, that which based itself principally upon the investigation of nature—as if there were any other; even today [this branch of medicine] is exercised among the Indians, especially by the kings, and in Persia by law of inheritance it is handed down to the children as once the whole art was by the Asclepiads. The Thracians, with many other nations, cultivate and honor it very highly almost to the neglect of that other part of the art, the prescription of drugs. This the Romans once proscribed from the state considering it delusive and destructive of mankind, and of no benefit to nature since, although seeking to aid nature while it is wholly concerned in an attempt to throw off the sickness, drugs frequently make matters worse and distract nature from its proper function.

Hence it is that so many jibes are frequently cast at physicians and this very holy art is mocked, although part of it, which those trained in the liberal arts shamefully permit to be torn away from them, could readily adorn it forever with special lustre. When Homer, that source of genius, declared that a physician is more distinguished than a host of other men, and, with all the poets of Greece, celebrated Podalirius and Machaon, those divine sons of Aesculapius were praised not so much because they dispelled a little fever or something else of slight consequences, which nature alone could cure more readily without the aid of a physician than with it, nor because they yielded to the summons of men in obscure and desperate affections, but because they devoted themselves especially to the treatment of luxations, fractures, wounds, and other solutions of continuity and fluxions of blood, and because they freed Agamemnon's noble warriors of javelins, darts, and other evils of that sort which are the peculiar accompaniment of wars, and which always require the careful attention of the physician.

However, most august Emperor Charles, I certainly do not propose to give preference to one instrument of medicine over the others, since the aforesaid triple method of treatment can in no way be disunited and the whole of it belongs to the one practitioner; and that he may employ it properly all parts of medicine have been equally established so that the successful use of a single part depends upon the degree to which they are all combined, for how rare is the sickness that does not immediately require the three instruments of treatment. Hence

## Appendix

a proper scheme of diet must be determined, and something must be done with drugs, and finally with the hands, so that the tyros of this art ought—if it please the gods—to be urged in every way, like the Greeks, to scorn the whisperings of those physicians and, as nature teaches, to employ their hands in treatment, lest they convert the mangled rationale of treatment into a calamity for the life of mankind. They ought to be urged the more strongly to this since we see learned physicians abstain from the use of the hands as from a plague lest the rabbins of medicine decry them before the ignorant mass as barbers and they acquire less wealth and honor than those [who are] scarcely half-physicians, and stand in less estimation before the uncomprehending mass of the people. Indeed, it is especially this detestable, vulgar opinion that prevents us, even in our age, from taking up the art of treatment as a whole, limiting us to the treatment of only internal diseases, to the great harm of mankind, and—if I may speak frankly—we strive to be physicians only in part.

When first the whole composition of drugs was relegated to the apothecaries, then the physicians promptly lost the necessary knowledge of simple medicines, and they were responsible for the apothecaries' shops becoming filled with barbarous names, and even false remedies, and for so many admirable compositions of the ancients being lost to us, several of which are still missing. Furthermore, they prepared an unending labor for learned men not only of our age but also for those who preceded it by some years, who have devoted themselves untiringly to the study of simple medicines and are seen to have contributed much through their effort to restore that knowledge to its former brilliance; Gerard van Veltwyck, secretary to your Majesty and rare example of this age, is representative of the many celebrated men engaged in this matter. Endowed with wide erudition in many disciplines and tongues he is the most skilled of our people in the knowledge of plants.

Furthermore, this very perverse distribution of the instruments of treatment among a variety of practitioners caused a very baleful disaster and a far more cruel blow to that chief branch of natural philosophy which, since it includes the description of man, ought rightfully to be considered the very beginning and solid foundation of the whole art of medicine. Hippocrates and Plato attributed so much to it that they did not hesitate to award it first place among the parts of medicine, and although at first it was especially cultivated by physicians, who strained every nerve to acquire it, finally it began miserably to collapse when they, resigning manual operations to others, destroyed anatomy. For when the physicians assumed that only the treatment of internal complaints concerned them, believing furthermore that knowledge of only the viscera was sufficient, they neglected the structure of the bones, muscles, nerves, and of the veins and arteries which creep through those bones and muscles, as of no concern to them. In addition, when the use of the hands was wholly entrusted to the barbers, not only was true knowledge of the viscera lost to the physicians, but also the practice of dissection [fol. \*3r] soon died away, because they did not undertake it, and those to whom the manual skills had been entrusted were so unlearned that they did not understand the writings of the professors of dissection.

Thus it was impossible that so very difficult and abstruse an art, acquired mechanically by this latter type of men, could be preserved for us, for the deplorable division of the art of treatment introduced into the schools that detestable procedure by which usually some conduct the dissection of the human body and others present the account of its parts, the latter like jackdaws aloft in their high chair, with egregious arrogance croaking things they have never investigated but merely committed to memory from the books of others, or reading what has already been described. The former are so ignorant of languages that they are un-

able to explain their dissections to the spectators and muddle what ought to be displayed according to the instructions of the physician who, since he has never applied his hand to the dissection of the body, haughtily governs the ship from a manual. Thus everything is wrongly taught in the schools, and days are wasted in ridiculous questions so that in such confusion less is presented to the spectators than a butcher in his stall could teach a physician. I omit mention of several schools where scarcely ever is even consideration given to the presentation of human anatomy, so far has ancient medicine declined from its former glory.

In the great felicity of this age—which the gods desire to be controlled by your sagacious Majesty—with all studies greatly revitalized, anatomy has begun to raise its head from profound gloom, so that it may be said without contradiction that it seems almost to have recovered its ancient brilliance in some universities; and with nothing more urgently desired than that knowledge of the parts of the human body be recovered, I, aroused by the example of so many distinguished men, decided to give what assistance I could and by those means at my command. And lest all others should successfully accomplish something for the sake of our common studies while I alone remain idle, and lest I achieve less than my ancestors, I decided that this branch of natural philosophy ought to be recalled from the region of the dead. If it does not attain a fuller development among us than ever before or elsewhere among the early professors of dissection, at least it may reach such a point that one can assert without shame that the presence science of anatomy is comparable to that of the ancients and that in our age nothing has been so degraded and then wholly restored as anatomy.

My intention could by no means have been fulfilled if, when I was studying medicine in Paris, I had not put my own hand to the matter but had accepted without question the several casual and superficial demonstrations of a few organs presented to me and to my fellow students in one or two public dissections by unskilled barbers. So perfunctory was the presentation of anatomy there where we first saw medicine reborn that I, experienced by several dissections of brutes under the direction of the never-to-be-sufficiently-praised Jacobus Sylvius, at the third dissection at which I was ever present and at the urging of my fellow students and the teachers, conducted it publicly and more completely than was usually the case. When I conducted it a second time—the barbers having been waved aside—I attempted to display the muscles of the arms as well as to make a more-accurate dissection of the viscera, for, except for eight abdominal muscles shamefully mangled and in the wrong order, no other muscle or any bone, and much less an accurate series of nerves, veins, or arteries was ever demonstrated to me by anyone. Later at Louvain, whither I had to return because of the outbreak of war, and where for eighteen years the physicians had not even dreamed of anatomy, in order to assist the students of that university and to acquire greater skill in a subject still obscure but of the first importance for medicine, I dissected with somewhat greater accuracy than at Paris and lectured on the entire structure of the human body. As a result, the younger professors of that university now seem to be seriously engaged in gaining a knowledge of the parts of man, fully appreciating what valuable philosophical material is to be acquired from this knowledge. At Padua, in that most famous university of the whole world, in order not to dissociate myself from the rest of medicine and induced by the salary offered by the very illustrious Venetian Senate, by far the most liberal to professional studies, I gave the lectures on surgical medicine, and because anatomy is related to this, I devoted myself to the investigation of man's structure. Thus I have already conducted anatomy very often here and in Bologna, and, discarding the ridiculous fashion of the schools, I demonstrated

and taught in such a way that there was nothing in my procedure that varied from the tradition of the ancients, and the construction of no part met with remained unstudied.

However, the slothfulness of physicians has prevented the preservation for us of the writings of Eudemus, Herophilus, Marinus, Andreas, Lycus, and other distinguished anatomists, since not even a fragment of any page remains of those illustrious authors, more than twenty in number, whom Galen mentions in his second commentary on Hippocrates's book *The nature of man*, and indeed of Galen's anatomical books scarcely a half have been saved from destruction. But if any of those who followed him, among whom I mention Oribasius, Theophilus, and the Arabs, and if our own writers whom I have thus far read—and I ask their pardon—[fol. \*32v] handed on anything worthy of being read, they borrowed it from Galen; and, by Jove, to one earnestly concerned with dissection there is nothing in which they seem to have had less interest than in the dissection of the human body. They are so firmly dependent upon I-know-not-what-quality in the writing of their leader that, coupled with the failure of others to dissect, they have shamefully reduced Galen into brief compendia and never depart from him—if ever they understood his meaning—by the breadth of a nail. Indeed, in the prefaces of their books they announce that their writings are wholly pieced together from Galen's conclusions and that all that is theirs is his, adding that if anyone by chance were to criticize their writings they would consider that Galen also had been criticized. So completely have all yielded to him that there is no physician who would declare that even the slightest error had ever been found, much less can now be found, in Galen's anatomical books, although—except that Galen often corrects himself, frequently alluding to his negligence in earlier books and often teaching the opposite in later ones after he became more experienced—it is now clear to me from the reborn art of dissection, from diligent reading of Galen's books and their restoration in several places—for which we need feel no shame—that he never dissected a human body; but deceived by his monkeys—although he did have access to two dried human cadavers—he frequently and improperly opposed the ancient physicians trained in human dissection. Nay, more, how many incorrect observations you will find in Galen, even regarding his monkeys, not to mention that it is very astonishing that Galen noticed none of the many and infinite differences between the organs of the human body and of the monkey except in the fingers and the bend of the knee, which undoubtedly he would have overlooked with the others except that they were obvious to him without human dissection.

However, at present I do not intend to criticize the false teachings of Galen, easily prince of professors of dissection; much less do I wish to be considered as disloyal from the start to the author of all good things and as paying no heed to his authority. For I recollect how the physicians—far otherwise than the followers of Aristotle—are usually upset when in the conduct of a single anatomy nowadays they see Galen's description to have been incorrect in well over two hundred instances relating to the human structure and its use and function, and how examining the dissected parts they seek fiercely and with the greatest zeal to defend him. Nevertheless, even they, influenced by love of truth, have little by little subsided and put more faith in their not-ineffectual eyes and reason than in Galen's writings. They eagerly dispatched these paradoxes, gained not from other authors nor supported merely by masses of authorities, hither and yon to their friends, exhorting them in such earnest and friendly fashion to their own investigation and thereby to knowledge of true anatomy, that there is hope that it will soon be cultivated in all our schools as it once was conducted in Alexandria

ANDREAS  
VESALIUS  
OF  
BRUSSELS,

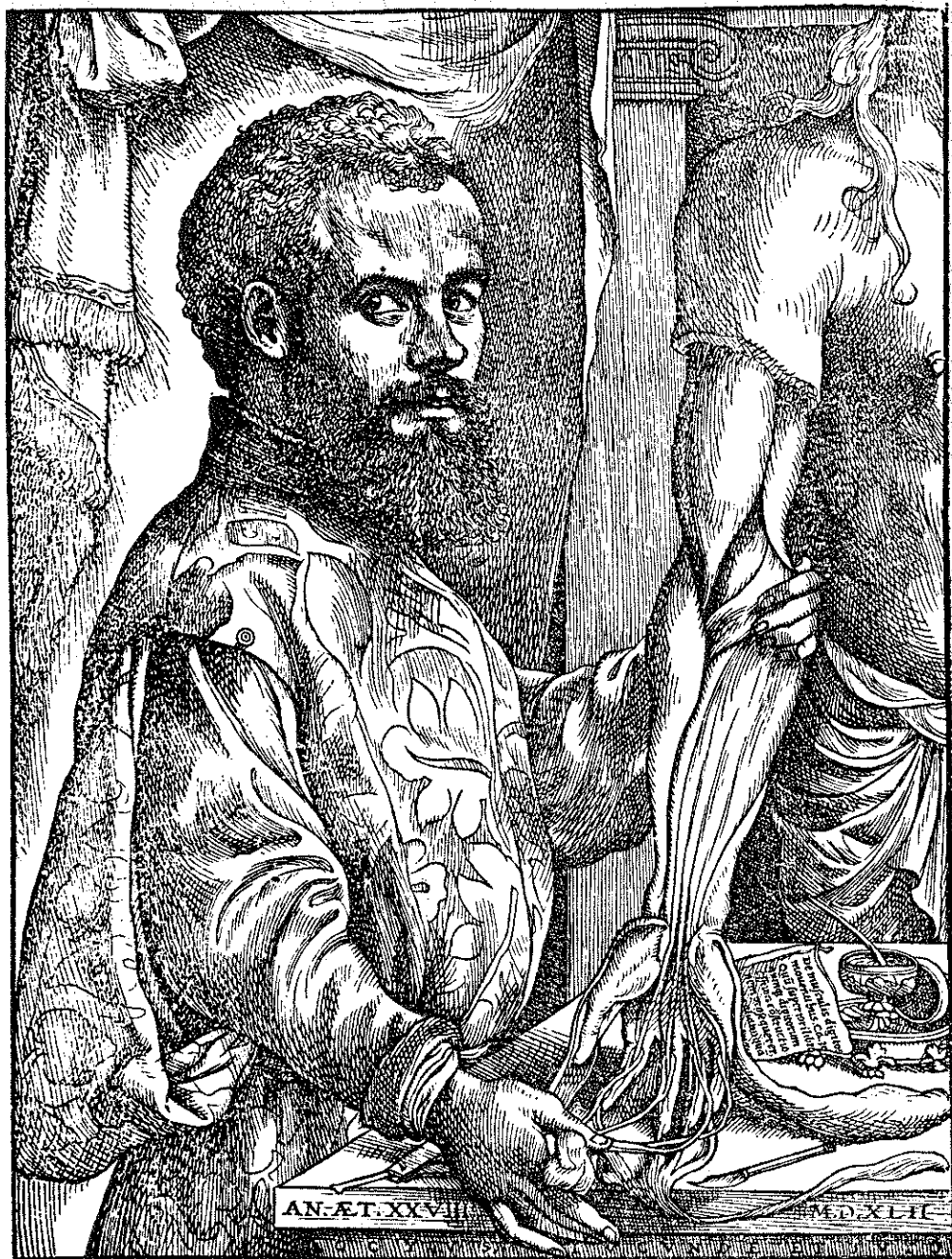
1514-1564/

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Andreas Vesalius at the age of twenty-eight. The only known authentic portrait, from the *Fabrica*.