

HEART

might not be to every man's taste; nevertheless, our opinion concerning what is drunk is not to be dismissed, namely that in the human being it lubricates the windpipe. But how does it come that liquid which rushes in recklessly provokes such great trouble and coughing? Because, as I say, it collides with the breath coming out. What, on the other hand, flows in through the narrow opening, inasmuch as it passes along the wall, is not impeded by the air passing upward, but rather its moistening effect provides the air with a kind of smooth path; this moisture the person sends up from his lung along with the air.

3. Now whereas a person must of necessity expel the air, after it has fulfilled its office, back through the same passage by which he drew it in, the moisture he partly spits out into the sheath of the heart, and partly allows to go back with the air to the outside, the breath in this process raising the extremity (sc. of the epiglottis) as it flows back. It flows back according to the normal course of events, for such substances are not nourishing to a man's nature—indeed, how could air and water be human nutriments, crude as they are? Rather, they are the counterbalance to an inborn disposition.¹

4. The subject of this discourse, the heart, is a muscle of particular strength, of flesh which is not cordlike, but compressed. It has two ventricles divided from each other in one covering, one on the one side, the other on the other. These ventricles do not resemble one another at all, for the one in the right parts—the right I mean of the parts on the

¹ I.e. to the heat of the heart; see chapter 5 below.

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left, as the entire heart has its seat in these—lies up against an orifice, being in contact with one of the two veins (vena cava). This (sc. right) ventricle is altogether wide-chambered and much slacker than the other one, nor does it occupy the extremity of the heart, but rather it leaves the extremity solid, and is as if stitched on from the outside.

5. The other (i.e. left) ventricle lies beneath for the most part, and is oriented especially towards the left breast, where its beat is visible. It has a thick enclosing wall, and its interior is a pit which has the form of a mortar. This (sc. ventricle) is already clothed by the lung, for the sake of relief, and being thus covered counteracts the unmixed quality of its heat: for the lung is cold by nature, being cooled further by the inspired air.

6. Both ventricles are shaggy in their interior parts and, as it were, somewhat corroded, the left more so than the right. Now in the right ventricle there is no inborn fire, so that it is no wonder that the left ventricle is the rougher, being filled as it is with unmixed fire. Its construction is also thicker as a means of preserving the force of its heat.

7. The orifices into the ventricles are not open to view unless someone clips off the apex of the auricles and the top part of the heart; if he does clip them, double orifices on the two ventricles will be revealed. If, on the other hand, the wide vein running up from one of the ventricles (superior vena cava) is cut away, it spoils the view. These ventricles are the fountains of a person's being, and rivers pass from them through the body to water its frame; these

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(sc. rivers) carry life to a person, and if they dry up, the person dies.

8. Near the place where the veins grow out of the heart are bodies bestriding the cavities—soft, spongy things called auricles, although they do not have channels in them as real ears do. In fact, these auricles do not take in sound, but rather are the organs by which nature captures the air. And I think this is the creation of a good hand-worker, for when he recognized that the viscus was going to be of a solid frame on account of the thickness of its substance, and then highly attractive, he added bellows to it, just as bronze smiths do to their melting-pots, in order that through these it would be able to handle the respiration. Proof of this theory: the heart, as you can see, moves as a whole, but the auricles inflate and collapse individually.

9. For the same reason I also assert that certain small veins (pulmonary veins) bring about the respiration that enters the left ventricle, the artery (pulmonary artery) what enters the other one: what is soft is more attractive and can expand. It is more necessary in us for what lies over the heart² to be cooled, for heat is harmful to the right parts, so that through its disposition the organ there does not receive heat easily, in order not to be completely subdued by what comes into it.

10. There remains an explanation of the heart's hidden membranes, a work most worthy of the recounting. Now membranes and certain other structures in the cavities like spider-webs (cordae tendineae) spread out and completely encircle the orifices, and at the same time send off fibres

² Perhaps the right ventricle (Ermerins ad loc.): see chapter 4 above. This whole passage is very turbid.

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into the solid heart (papillary muscles). These I believe to be the bands of the viscus and of the chambers, the origins to the aortae.³ There is a pair of these, to each of which at its gates three membranes are attached, rounded at their margins and having the shape of semicircles, which in coming together in some marvellous way close the orifices and set the limit of the aortae. And if someone knowledgeable of the ancient rite were to take out the heart of a man who had died, and draw back one of these (sc. membranes) and incline the other one,⁴ neither water would be able to go through into the heart nor air that was being forced—and more so in the case of those on the left, for these are constructed more tightly, as is fitting: for the intelligence of man is established in the left cavity, and it rules over the rest of his soul.

11. This intelligence is nourished not from the gut by foods and drinks, but by a pure and luminous bath coming from a distillate of the blood. It obtains its nutriment in abundance from that which is most near, receiving it from the blood, transmitting its rays, and feeding as if on nourishment out of the stomach and the intestines, but in a way not according to normal nature. †In order that the contents of the artery do not send back food in a state of turbulence†, it closes off the path to the ventricle.⁵ For the large

³ *ἀορτή* is little more than a variant of *ἀρτηρία*, and in meaning both seem to occupy a middle ground between bronchus and artery; cf. *Places in Man* 14, *Coan Prenotions* 394, and *Diseases II* 54.

⁴ The mention of two rather than three valve cusps here suggests a knowledge of the mitral valve.

⁵ Or “artery.”

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artery feeds from the stomach and the intestines, and is full of nutriment which is not suitable for the ruling power. That it (i.e. the intelligence in the left ventricle) is not nourished by visible blood is made clear by the following: in an animal that has reached the state of *rigor mortis*, when the left cavity is cut open, it appears completely empty except for some serum and yellow bile, and the membranes mentioned above, but the artery has no shortage of blood, nor does the right cavity. Now to my mind, this is the reason for the membranes in this chamber.

12. The vessel (pulmonary artery) which passes out of the right (sc. ventricle) is also controlled by the meeting of membranes, except that it, on account of its weakness, is not well fitted with doors. It opens into the lung, in order to provide it with blood as nourishment, but is closed into the heart, although not by a completely tight joint, so that some air still goes in, but not very much. On the right the heat is weak, being dominated by an admixture of cold; indeed, blood is not warm by its nature any more than any other liquid is, but rather it becomes warm—it is only thought by most people to be warm by nature.

About the heart, let this much be said.