

20. '... without any help from the body' (added in French version).
21. '... carefully and maturely examined' (French version).
22. '... and thus seem to have been directly deceived by my nature' (added in French version).
23. '... but occurs merely as a result of the disposition of the organs' (French version).
24. The supposed faculty which integrates the data from the five specialized senses (the notion goes back

ultimately to Aristotle). 'The seat of the common sense must be very mobile, to receive all the impressions coming from the senses, but must be moveable only by the spirits which transmit these impressions. Only the *conarion* [pineal gland] fits these conditions' (letter to Mersenne, 21 April 1641).

25. '... like those that are formed in the brain when I sleep' (added in French version).

The Passions of the Soul

René Descartes

17. The Functions of the Soul

Having thus considered all the functions belonging solely to the body, it is easy to recognize that there is nothing in us which we must attribute to our soul except our thoughts. These are of two principal kinds, some being actions of the soul and others its passions. Those I call its actions are all our volitions, for we experience them as proceeding directly from our soul and as seeming to depend on it alone. On the other hand, the various perceptions or modes of knowledge present in us may be called its passions, in a general sense, for it is often not our soul which makes them such as they are, and the soul always receives them from the things that are represented by them.

18. The Will

Our volitions, in turn, are of two sorts. One consists of the actions of the soul which terminate in the soul itself, as when we will to love God or, generally speaking, to apply our mind to some object which is not material. The other consists of actions which terminate in our body, as when our merely willing to walk has the consequence that our legs move and we walk.

19. Perception

Our perceptions are likewise of two sorts: some have the soul as their cause, others the body. Those having the soul as their cause are the perceptions of our volitions and of all the imaginings or other thoughts which depend on them. For it is certain that we cannot will anything without thereby perceiving that we are willing it. And although willing something is an action with respect to our soul, the perception of such willing may be said to be a passion in the soul. But because this perception is really one and the same thing as the volition, and names are always determined by whatever is most noble, we do not normally call it a 'passion', but solely an 'action'.

30. The Soul Is United to All the Parts of the Body Conjointly

But in order to understand all these things more perfectly, we need to recognize that the soul is really joined to the whole body, and that we cannot properly say that it exists in any one part of the body to the exclusion of the others. For the body is a unity which is in a sense indivisible because of the arrangement of its organs, these being so

related to one another that the removal of any one of them renders the whole body defective. And the soul is of such a nature that it has no relation to extension, or to the dimensions or other properties of the matter of which the body is composed: it is related solely to the whole assemblage of the body's organs. This is obvious from our inability to conceive of a half or a third of a soul, or of the extension which a soul occupies. Nor does the soul become any smaller if we cut off some part of the body, but it becomes completely separate from the body when we break up the assemblage of the body's organs.

31. There Is a Little Gland¹ in the Brain Where the Soul Exercises Its Functions More Particularly Than in the Other Parts of the Body

We need to recognize also that although the soul is joined to the whole body, nevertheless there is a certain part of the body where it exercises its functions more particularly than in all the others. It is commonly held that this part is the brain, or perhaps the heart—the brain because the sense organs are related to it, and the heart because we feel the passions as if they were in it. But on carefully examining the matter I think I have clearly established that the part of the body in which the soul directly exercises its functions is not the heart at all, or the whole of the brain. It is rather the innermost part of the brain, which is a certain very small gland situated in the middle of the brain's substance and suspended above the passage through which the spirits in the brain's anterior cavities communicate with those in its posterior cavities. The slightest movements on the part of this gland may alter very greatly the course of these spirits, and conversely any change, however slight, taking place in the course of the spirits may do much to change the movements of the gland.

32. How We Know That This Gland Is the Principal Seat of the Soul

Apart from this gland, there cannot be any other place in the whole body where the soul directly exercises its functions. I am convinced of this

by the observation that all the other parts of our brain are double, as also are all the organs of our external senses—eyes, hands, ears and so on. But in so far as we have only one simple thought about a given object at any one time, there must necessarily be some place where the two images coming through the two eyes, or the two impressions coming from a single object through the double organs of any other sense, can come together in a single image or impression before reaching the soul, so that they do not present to it two objects instead of one. We can easily understand that these images or other impressions are unified in this gland by means of the spirits which fill the cavities of the brain. But they cannot exist united in this way in any other place in the body except as a result of their being united in this gland.

33. The Seat of the Passions Is Not in the Heart

As for the opinion of those who think that the soul receives its passions in the heart, this is not worth serious consideration, since it is based solely on the fact that the passions make us feel some change in the heart. It is easy to see that the only reason why this change is felt as occurring in the heart is that there is a small nerve which descends to it from the brain—just as pain is felt as in the foot by means of the nerves in the foot, and the stars are perceived as in the sky by means of their light and the optic nerves. Thus it is no more necessary that our soul should exercise its functions directly in the heart in order to feel its passions there, than that it should be in the sky in order to see the stars there.

34. How the Soul and the Body Act on Each Other

Let us therefore take it that the soul has its principal seat in the small gland located in the middle of the brain. From there it radiates through the rest of the body by means of the animal spirits, the nerves, and even the blood, which can take on the impressions of the spirits and carry them through the arteries to all the limbs. Let us recall what we said previously about the mechanism of our body. The nerve-fibres are so distributed in all the parts of the body that when the objects of the senses produce various different

movements in these parts, the fibres are occasioned to open the pores of the brain in various different ways. This, in turn, causes the animal spirits contained in these cavities to enter the muscles in various different ways. In this manner the spirits can move the limbs in all the different ways they are capable of being moved. And all the other causes that can move the spirits in different ways are sufficient to direct them into different muscles. To this we may now add that the small gland which is the principal seat of the soul is suspended within the cavities containing these spirits, so that it can be moved by them in as many different ways as there are perceptible differences in the objects. But it can also be moved in various different ways by the soul, whose nature is such that it receives as many different impressions—that is, it has as many different perceptions as there occur different movements in this gland. And conversely, the mechanism of our body is so constructed that simply by this gland's being moved in any way by the soul or by any other cause, it drives the surrounding spirits towards the pores of the brain, which direct them through the nerves to the muscles; and in this way the gland makes the spirits move the limbs.

35. Example of the Way in which the Impressions of Objects Are United in the Gland in the Middle of the Brain

Thus, for example, if we see some animal approaching us, the light reflected from its body forms two images, one in each of our eyes; and these images form two others, by means of the optic nerves, on the internal surface of the brain facing its cavities. Then, by means of the spirits that fill these cavities, the images radiate towards the little gland which the spirits surround: the movement forming each point of one of the im-

ages tends towards the same point on the gland as the movement forming the corresponding point of the other image, which represents the same part of the animal. In this way, the two images in the brain form only one image on the gland, which acts directly upon the soul and makes it see the shape of the animal.

36. Example of the Way in which the Passions Are Aroused in the Soul

If, in addition, this shape is very strange and terrifying—that is, if it has a close relation to things which have previously been harmful to the body—this arouses the passion of anxiety in the soul, and then that of courage or perhaps fear and terror, depending upon the particular temperament of the body or the strength of the soul, and upon whether we have protected ourselves previously by defence or by flight against the harmful things to which the present impression is related. Thus in certain persons these factors dispose their brain in such a way that some of the spirits reflected from the image formed on the gland proceed from there to the nerves which serve to turn the back and move the legs in order to flee. The rest of the spirits go to nerves which expand or constrict the orifices of the heart, or else to nerves which agitate other parts of the body from which blood is sent to the heart, so that the blood is rarefied in a different manner from usual and spirits are sent to the brain which are adapted for maintaining and strengthening the passion of fear—that is, for holding open or re-opening the pores of the brain which direct the spirits into these same nerves. For merely by entering into these pores they produce in the gland a particular movement which is ordained by nature to make the soul feel this passion. And since these pores are related mainly to the little nerves which serve to contract or expand the orifices of the heart, this makes the soul feel the passion chiefly as if it were in the heart.

NOTE

1. The pineal gland.