

Treatise on Man

The Illustrations of Clerselier's Edition of Descartes's Traité de l'homme (1664)

- *Descartes's Figures*
- *Schuyl's Figures*
- *Gutschoven*
- *La Forge*

Structure of the treatise

Part 1: On the machine of the body

Part 2: How the machine of the body is moved

*Part 3: The external senses of this machine and how they are
related to ours*

Part 4: On the internal senses which are to be found in this machine

*Part 5: On the structure of the brain of this machine, and how the spirits
are distributed there so as to cause its movements and its sensations*

Part 1

Man = soul + body

Body → clock

First, food is **digested** in the **stomach** of this machine by the force of certain fluids which, gliding among its parts.... And the *finest and most agitated* meanwhile encounter **innumerable small holes** through which they flow into the branches of a large vein that bears them toward the **liver**

These finer parts of the food, being of different sizes and still imperfectly mixed together, make up a **fluid** which would remain quite agitated

it should be noted here that the **pores of the liver** are arranged in such a way that this fluid, on entering, is refined and **transformed**, taking on the colour and **form of blood**, just as the white juice of black grapes is converted into light-red wine when it is allowed to ferment on the vine stock.

Part 1

Descartes says that the food first becomes ***chyle*** in the stomach, then ***chime*** in the liver, as the result of a kind of fermentation, and finally ***blood***, in the heart, as a result of an **ebullient reaction**

arterial vein → without being thickened again, it would be inadequate to sustain the **fire** that is there

Definition of Pulse : The pulse, or the beating of the arteries, depends on eleven small **membranes**¹² which, like so many small doors, close and open the orifices of the **four vessels** that open into the two cavities of the heart. For at the moment when a beat ceases and another one is ready to begin, the small doors at the orifices of the arteries are shut tight, while those at the orifices of the two veins are open, so that two drops of blood cannot but fall immediately from these two veins, one into each cavity of the heart

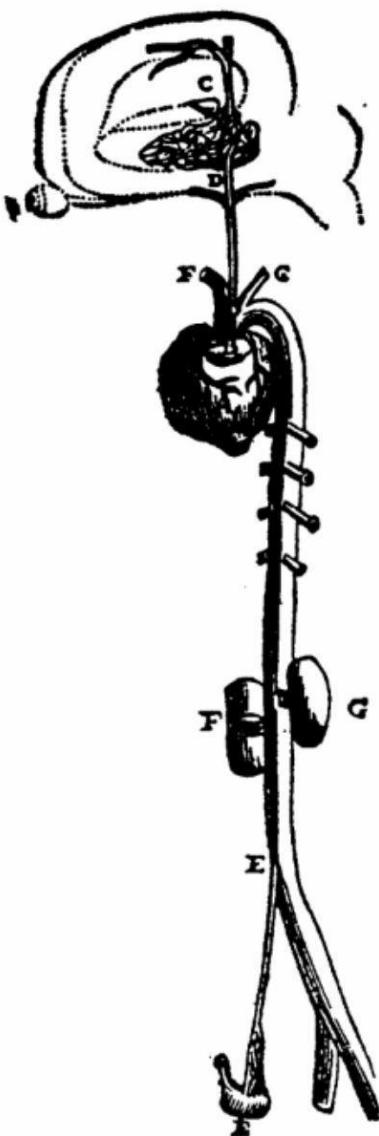


Fig. 31

Part 1

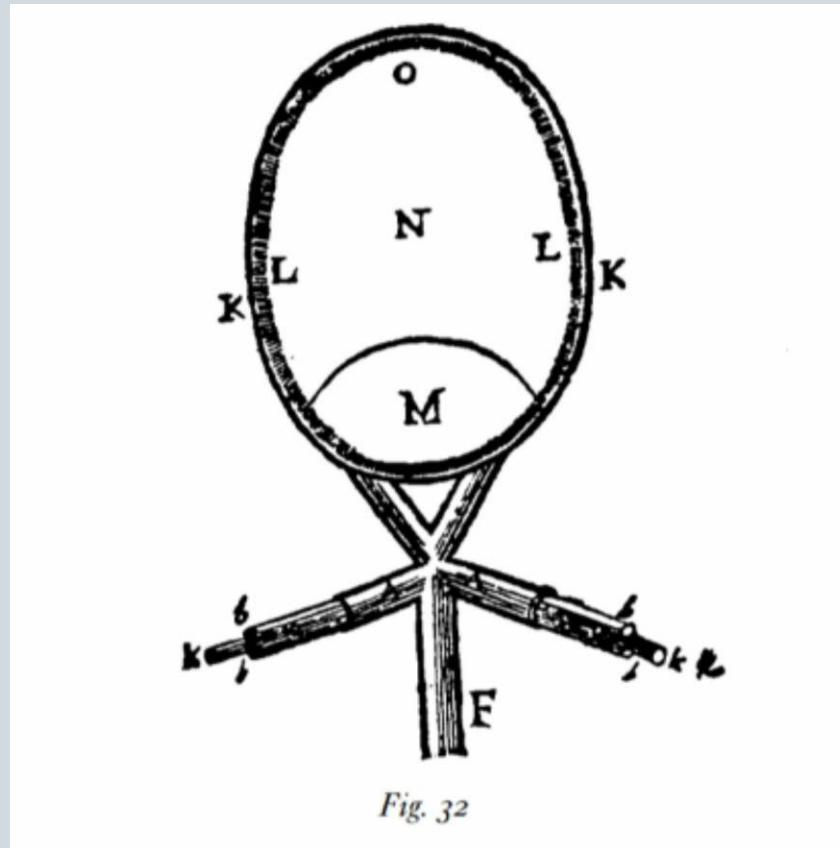
Animal spirits:

but above all to produce there a certain very fine wind, or rather a very lively and very pure flame, which is called the 'animal spirits'

come together again around a certain little gland which lies near the middle of the substance of the brain, just at the entrance to its cavities; and those in this region have a large number of small holes through which the finest parts of the blood can flow into this gland, and these are so narrow that they **do not allow the larger ones to get past.....** they cease to have the **form of blood** and are called animal spirits.

Part 2

these spirits enter the cavities of the brain, they also pass in the same proportions from there into the pores of its substance, and from these pores into the nerves. And depending on which of these nerves...they have the power to change the shapes of the muscles into which these nerves are embedded, and in this way to move all the limbs



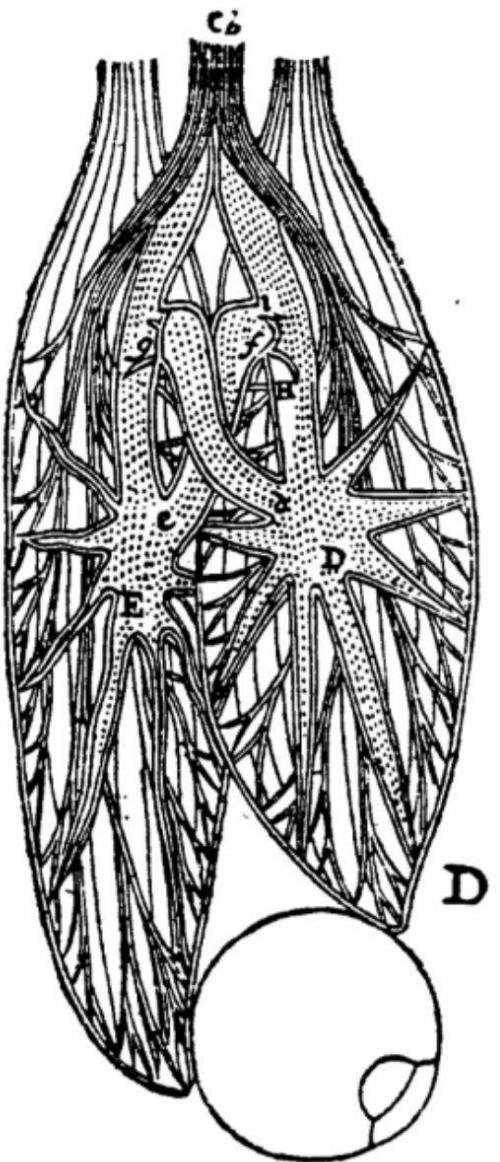


Fig. 34a

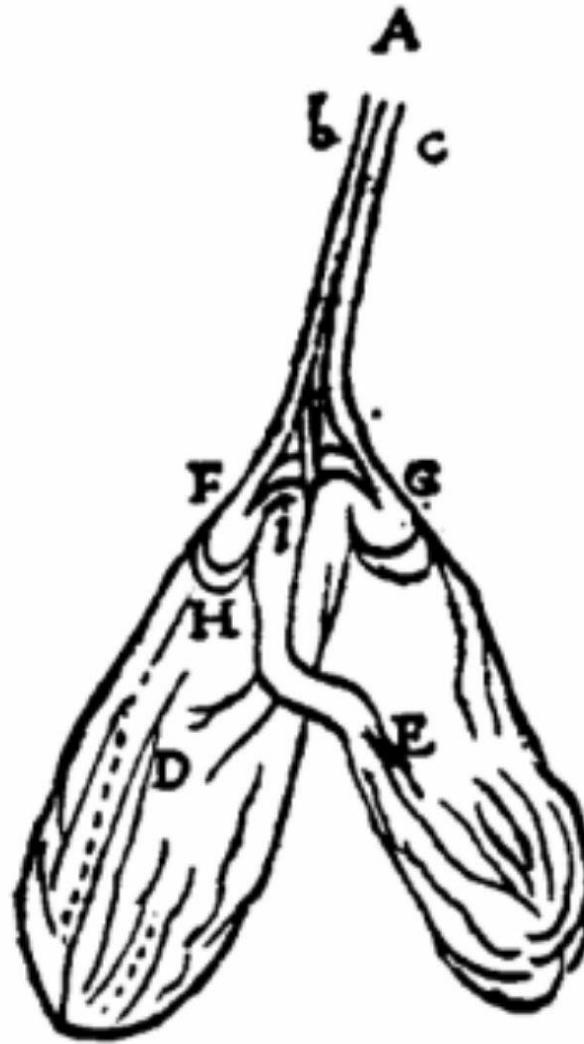


Fig. 34b

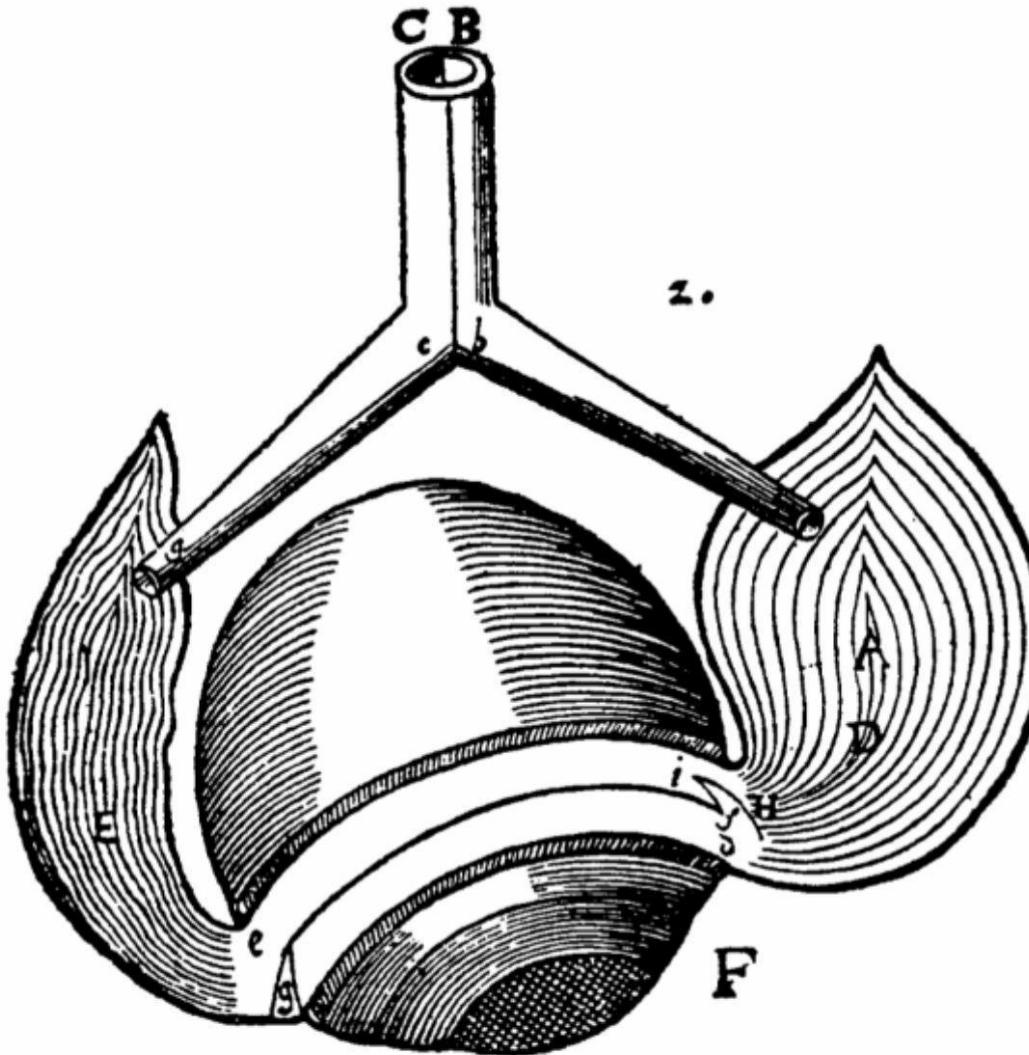
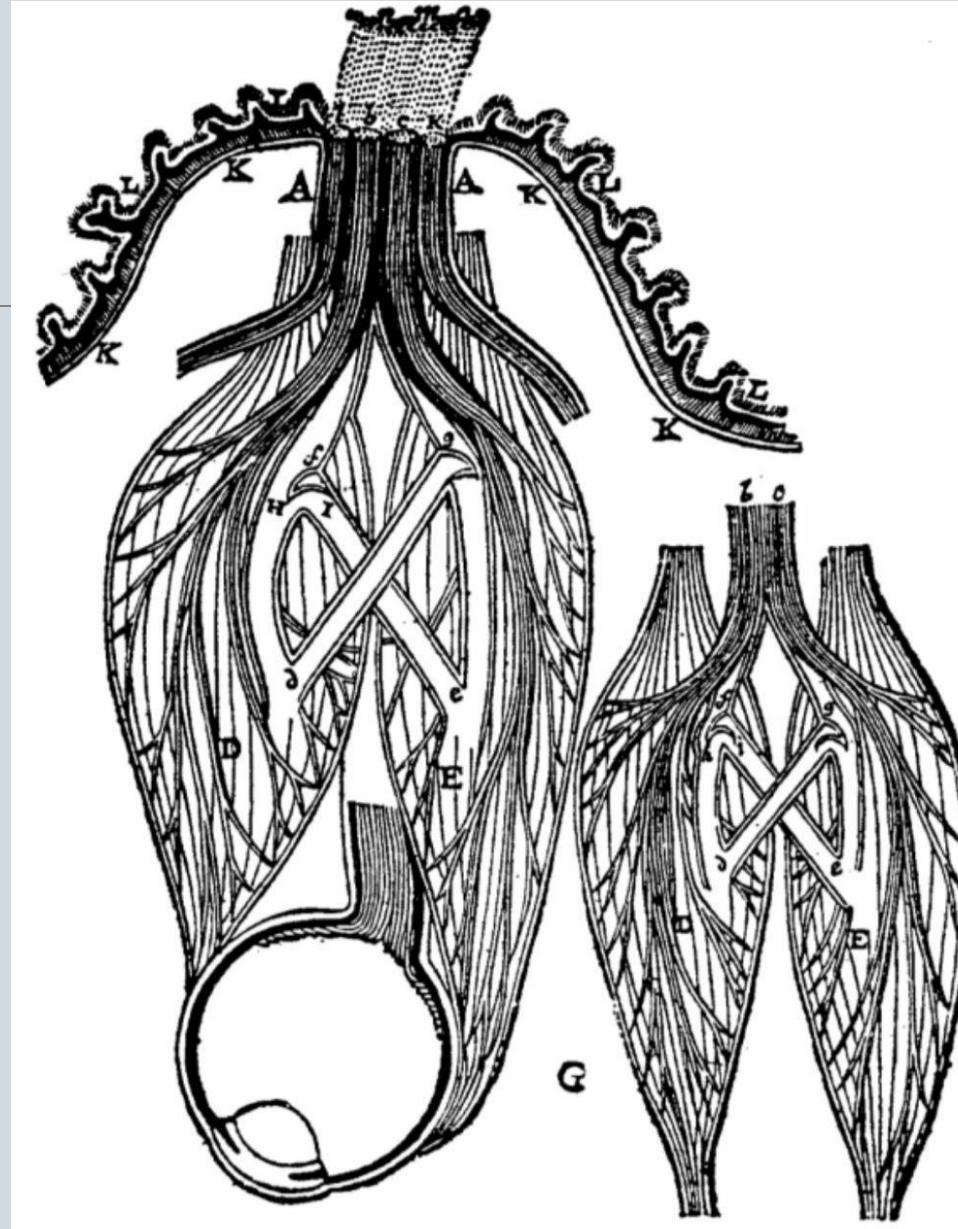


Fig. 35



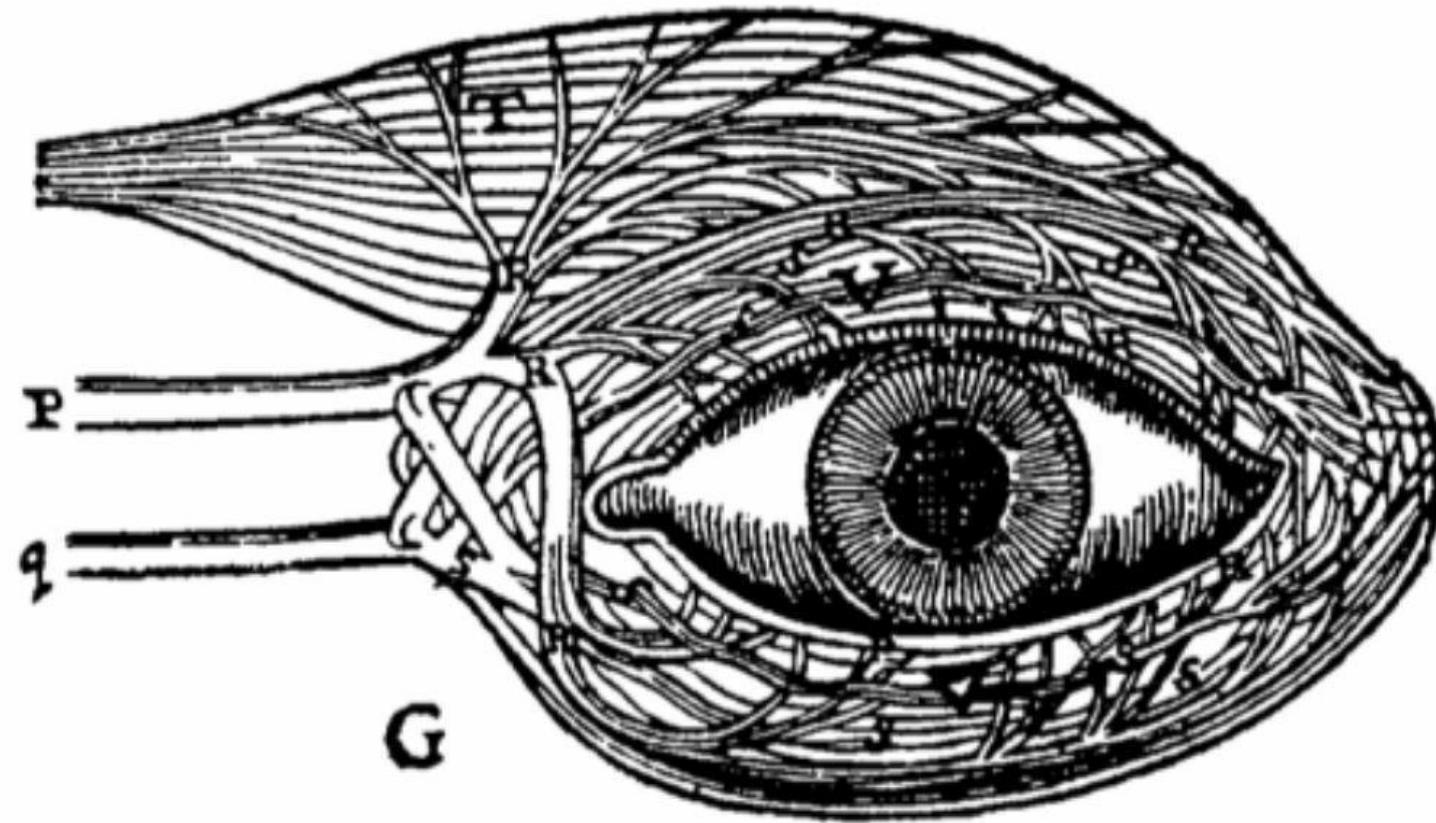


Fig. 36

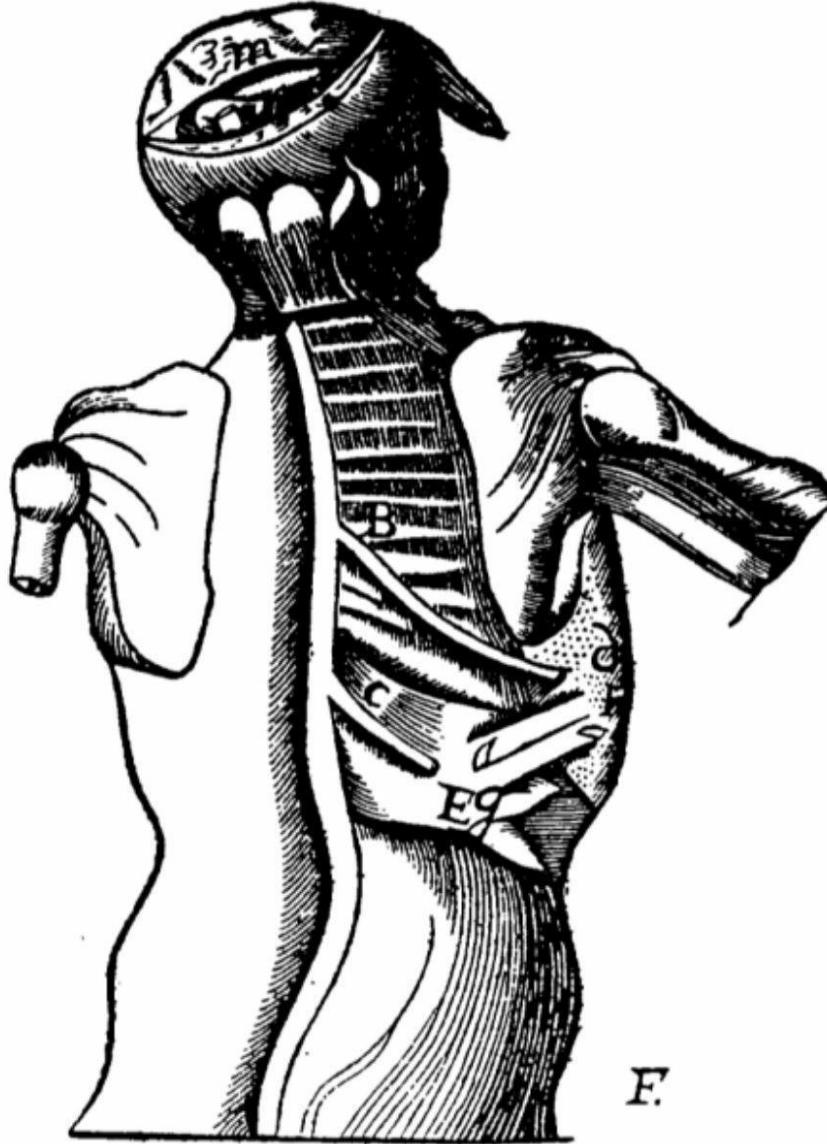


Fig. 37



Part 3

Sensation of pain :

marrow of the nerves are pulled with such a force that they are broken and separated from that part of the body to which they were attached

Sensation of tingling :

pulled by a force almost as great as this, but nevertheless are not broken or separated from the parts to which they are attached

Sensation of smoothness :

many of these tiny fibres are pulled with equal force and all together

Sensation of roughness :

¬smoothness

Part 3

Sensation of heat and cold :

if they are set in motion only slightly, and separately from one another, as they are constantly by the heat that the heart transmits to other bodily parts, the soul will have no more sensation of this than of any other normal bodily function. But if this movement is increased or lessened by some unusual cause, its increase will cause the soul to have a sensation of heat, and its decrease a sensation of cold

Part 3

Taste :

The parts of acid flow diagonally, slicing or cutting its most tender parts while giving way to the coarser ones

Smell :

- The sense of smell also depends on many tiny fibres which are projected toward the nose
- except that they do not leave the cavity of the head which contains the brain as a whole

Sound:

For it will be these little blows that, in passing to the brain through the intermediary of these nerves, will cause the soul to conceive the idea of sound.

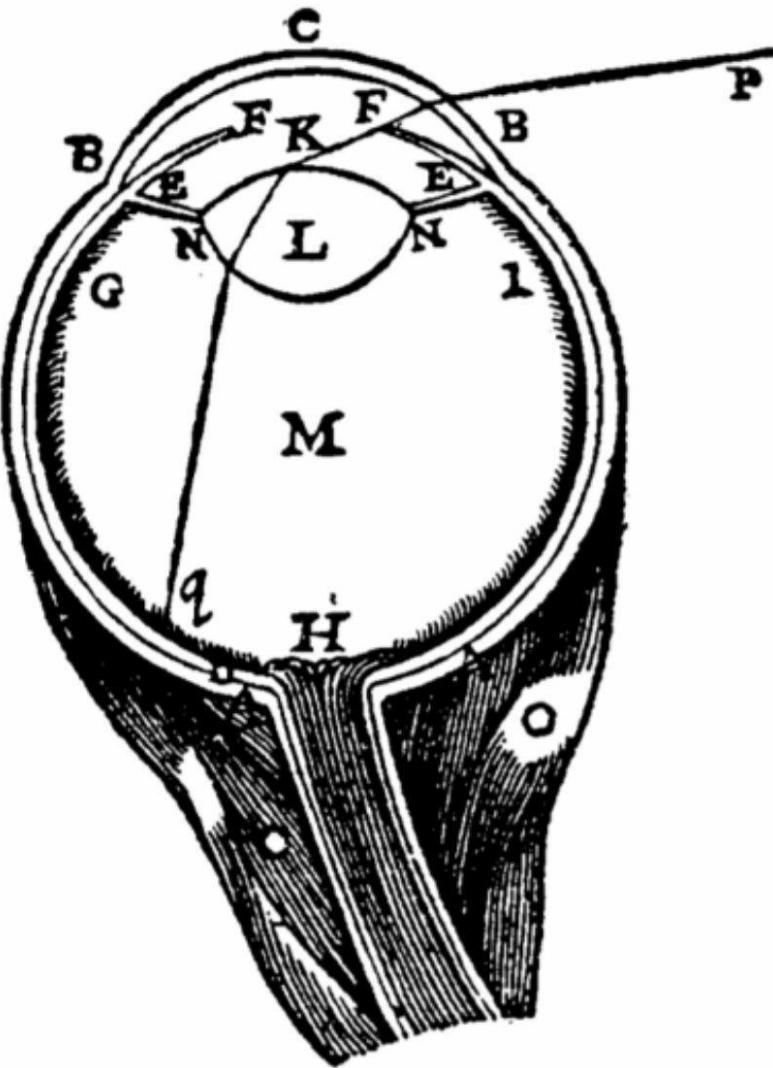


Fig. 40

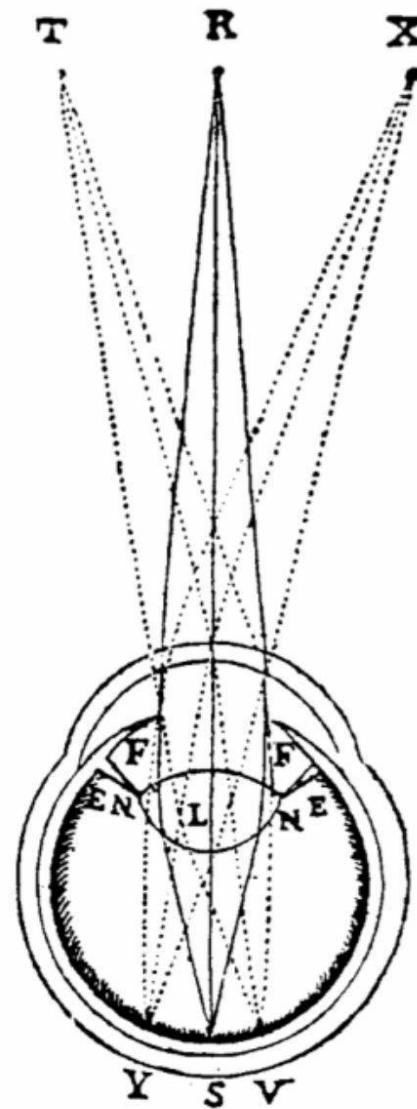


Fig. 41

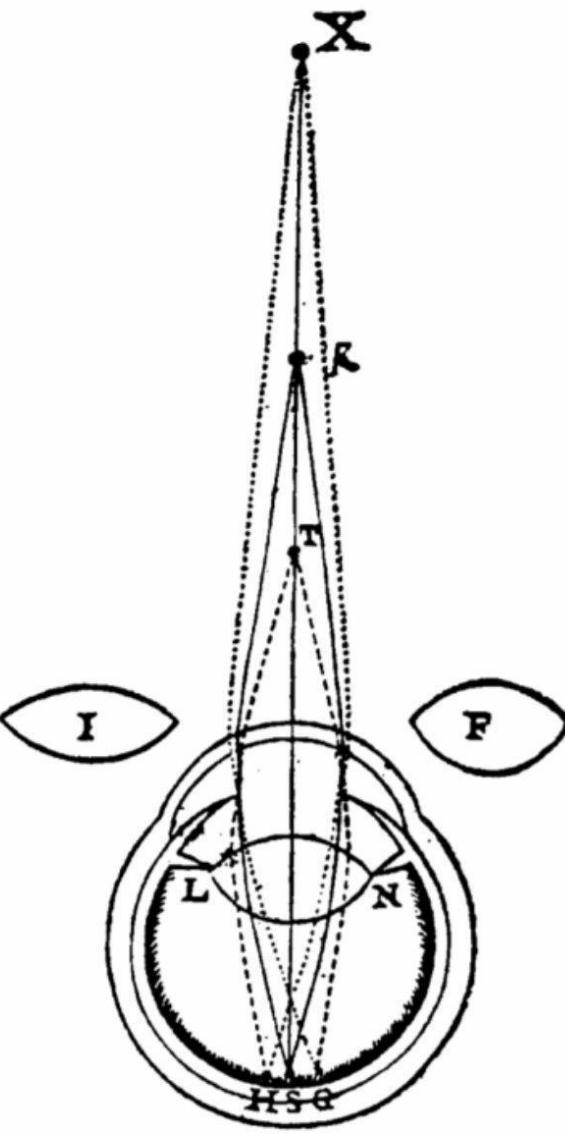


Fig. 42

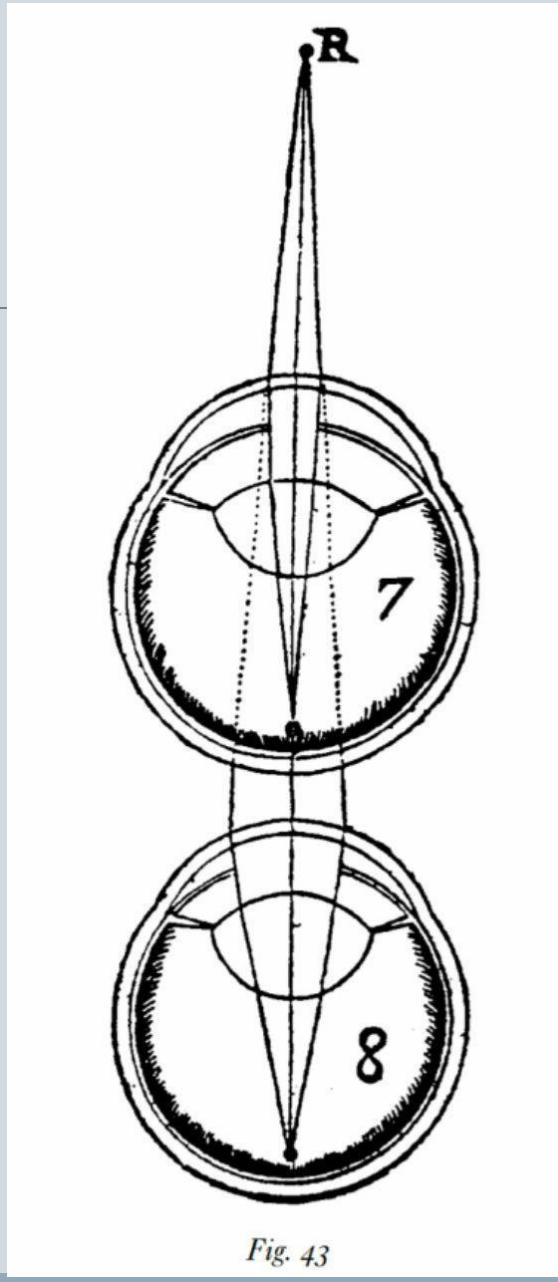


Fig. 43

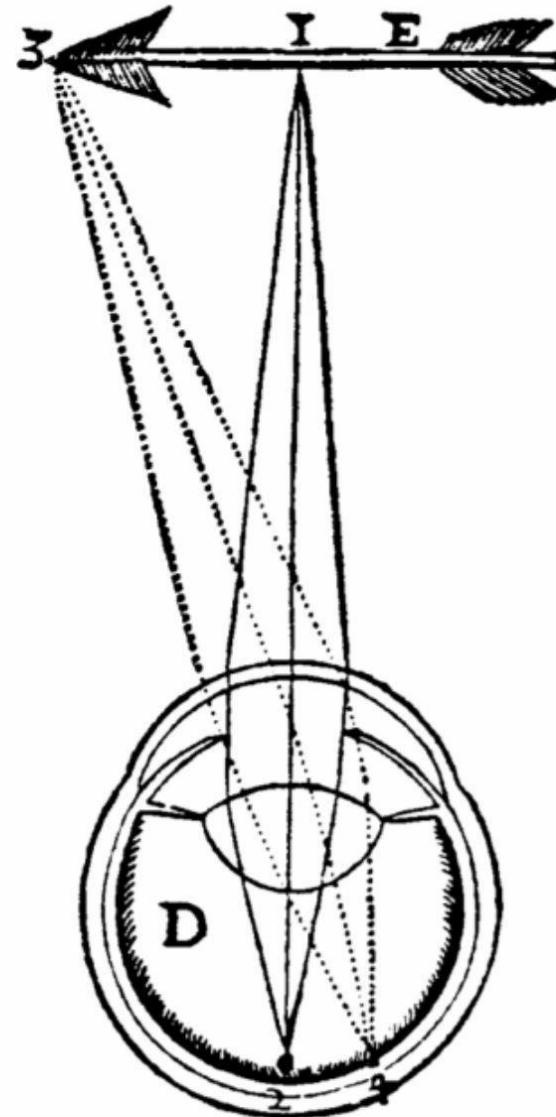


Fig. 45

Part 3

1.

1. And finally, the soul will be able to tell the size and all other similar qualities of visible objects simply through its knowledge of the distance and position of all their points

2. To explain these functions, then, it is not necessary to conceive of any vegetative or sensitive soul, or any other principle of movement or life, other than its blood and its spirits which are agitated by the heat of the fire that burns continuously in its heart, and which is of the same nature as those fires that occur in inanimate bodies.



Fig. 46

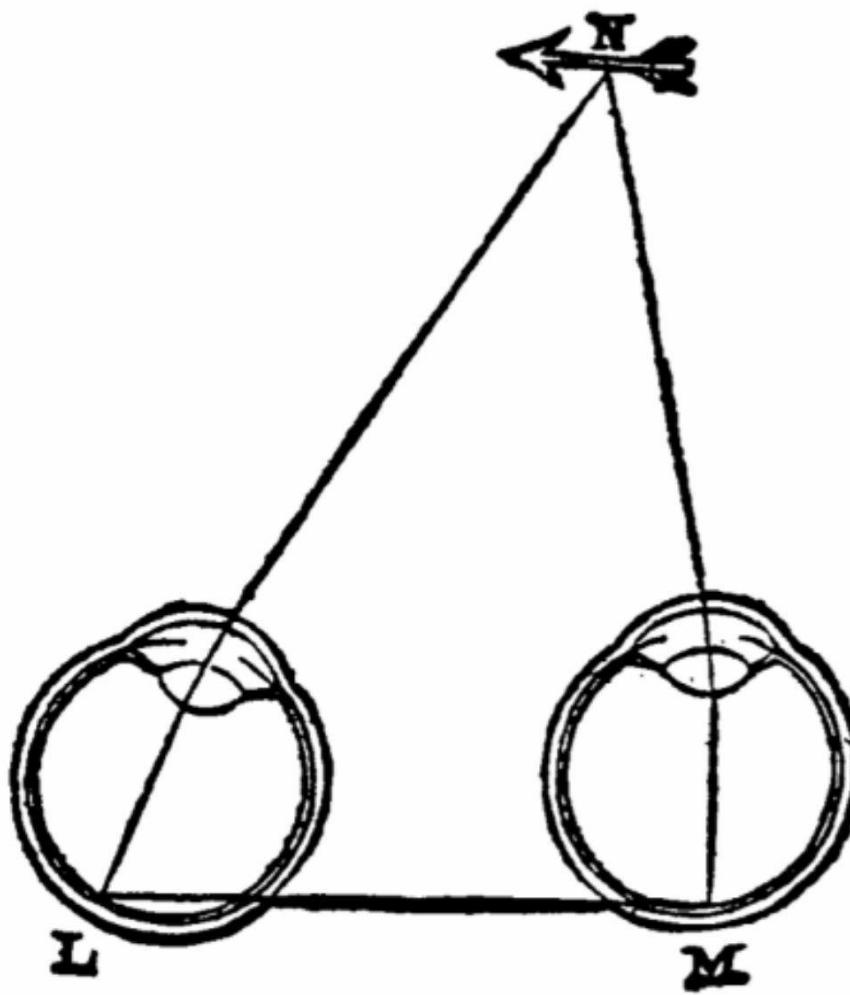


Fig. 47

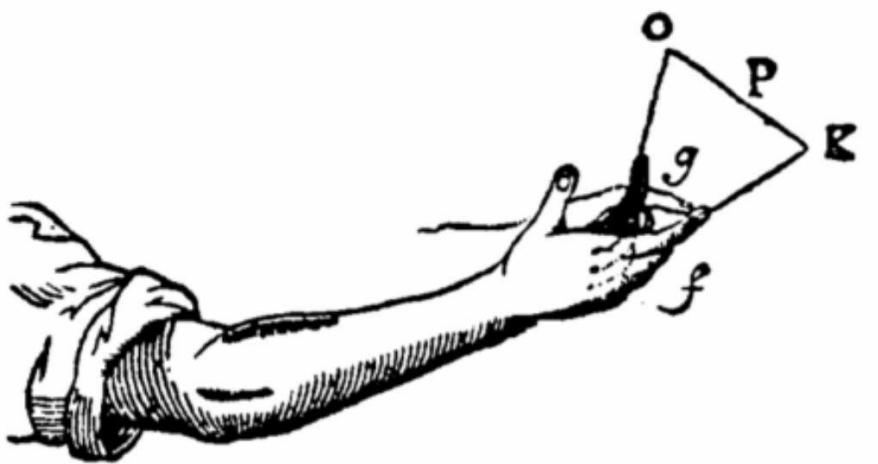


Fig. 48

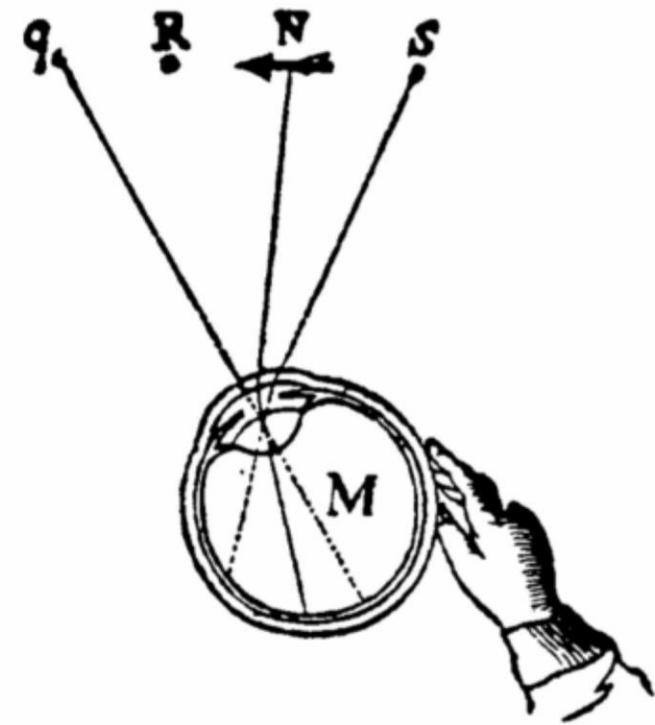


Fig. 49

In conclusion, we must note that none of the means by which the soul tells distance will be completely certain

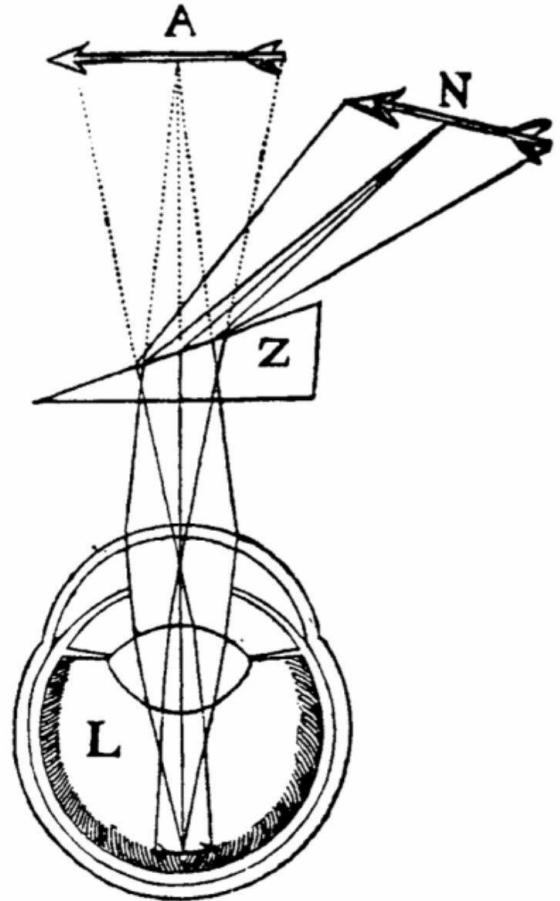


Fig. 52

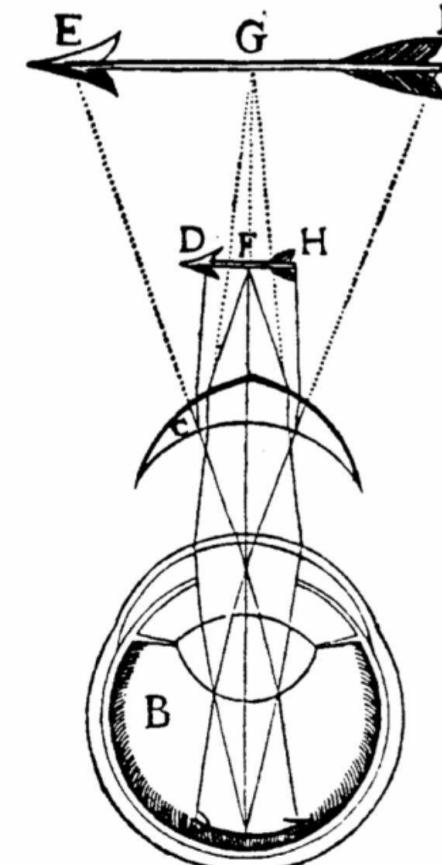


Fig. 53

Part 4

- Idea of hunger:

When the fluids do not find sufficient food to dissolve

-An appetite to eat certain food:

When the fluids disposed as to act against certain particular foods

-Thirst:

when they do not come there in sufficient amounts to moisten

-joy and sadness :

when the blood which enters the heart is purer and more subtle

Sadness= \neg (joy)

Part 4

Function of the body like an organ

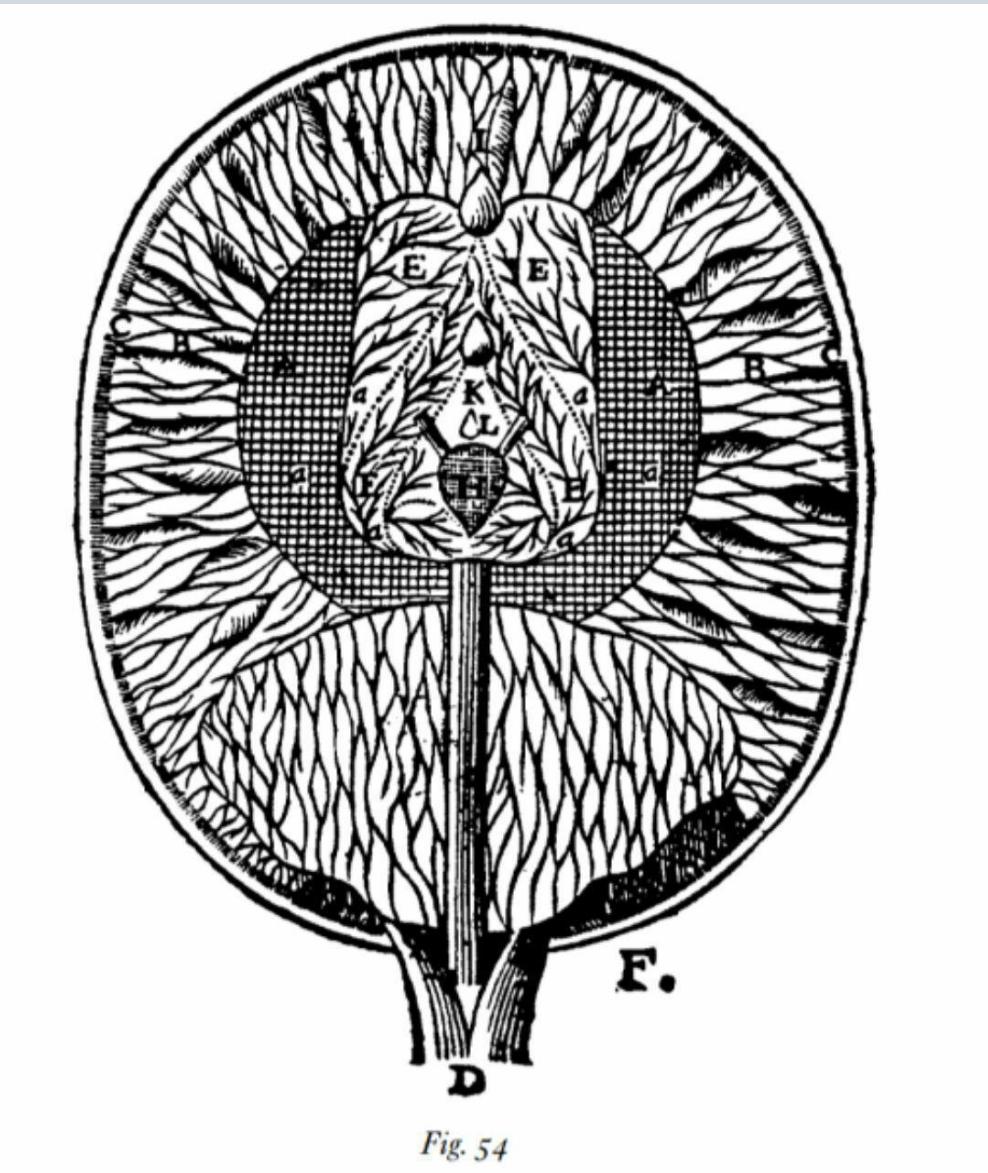
I would point out, the functions that we are concerned with here do not depend at all on the external shape of the visible parts which the anatomists distinguish in the substance of the brain and in its cavities, but solely on three factors, namely:

- 1- The spirits that come from the heart
- 2- The pores of the brain through which they pass
- 3- The way in which the spirits are distributed in these pores

Part 4

For if these spirits are exceptionally abundant, they are able to excite in it movements similar to those that testify in us to generosity, liberality, and love; confidence and courage if their parts are very strong and coarse, and of constancy if their parts are also more equal in shape, force, and size; promptitude, diligence, and desire if they are exceptionally agitated; and tranquillity of spirit if their agitation is exceptionally uniform. Whereas if the same qualities are lacking, on the other hand, these same spirits are able to excite movements in it just like the movements in us that testify to malice, timidity, inconstancy, tardiness, and ruthlessness.

Part 5



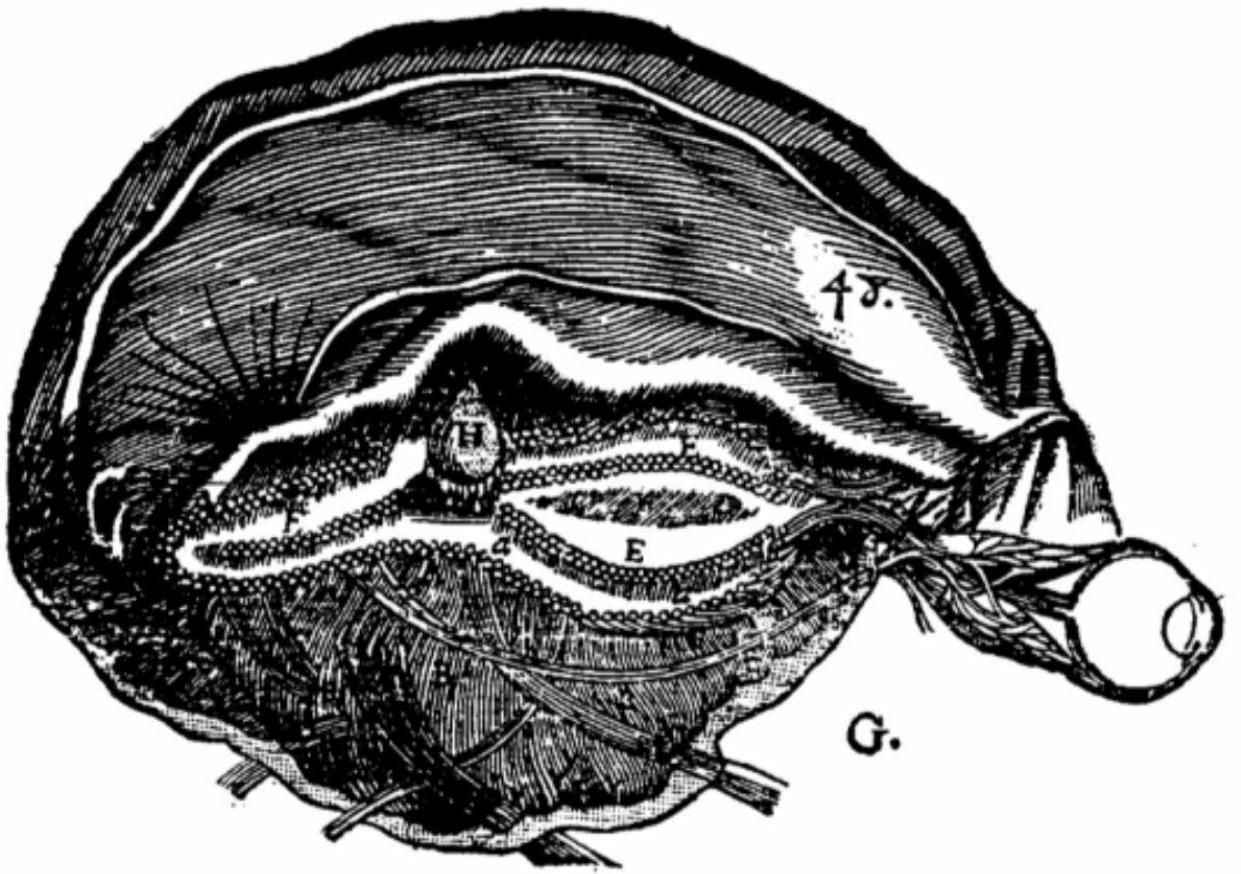


Fig. 55

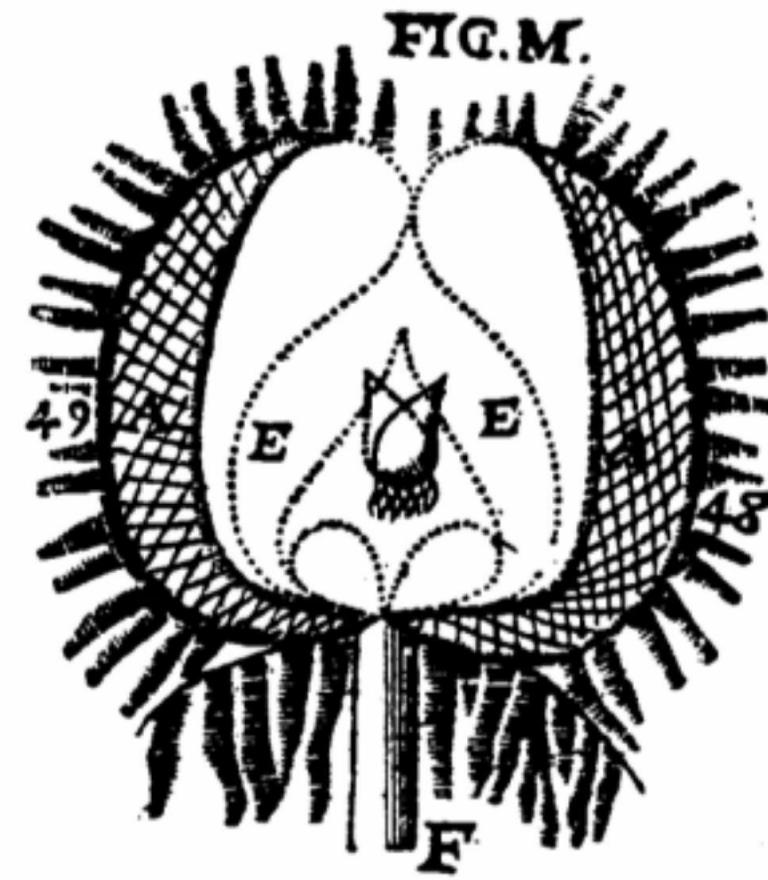


Fig. 56

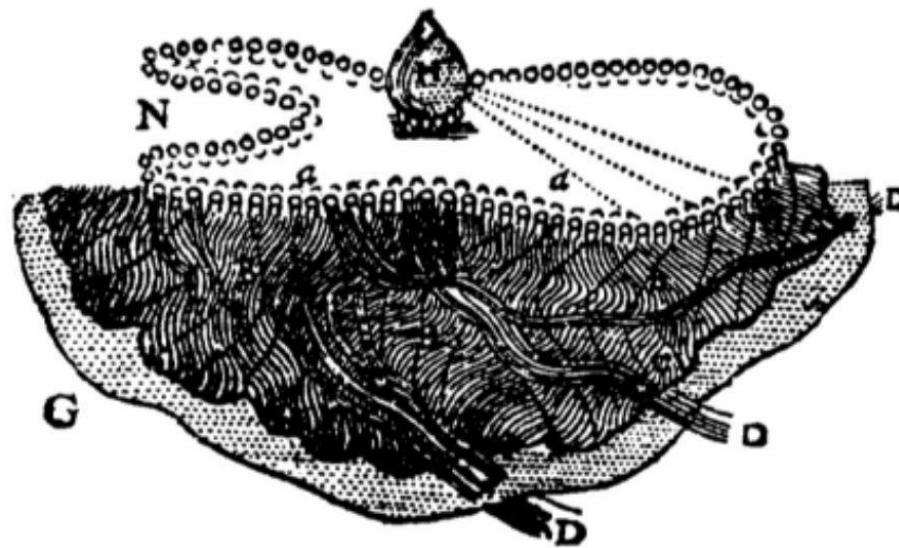


Fig. 59

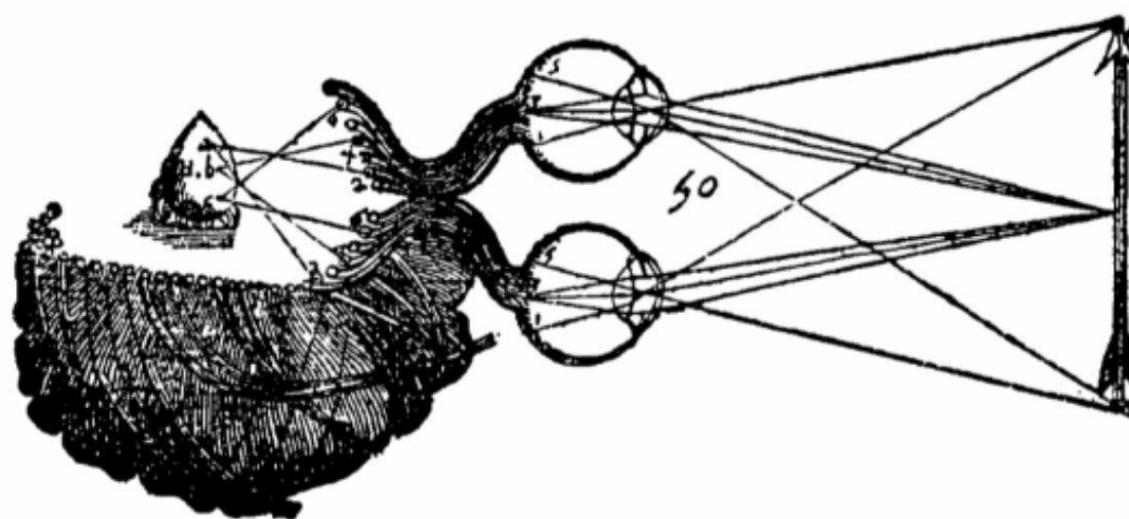


Fig. 60

Part 5

Common sense :

‘imagine’ or ‘sense’. For I wish to apply the term ‘idea’ generally to all the impressions which the spirits are able to receive as Common sense

Memory :

At first they do this less easily and perfectly here than on gland ②, but they gradually improve as their action becomes stronger and lasts longer, or is repeated more often. Which is why in such cases these patterns are no longer easily erased, but are preserved in such a way that the ideas that were previously on this gland can be formed again long afterwards without requiring the presence of the objects to which they correspond. And this is what memory consists in.

Part 5

For example, if I see two eyes with a nose, I immediately imagine a forehead and a mouth, and all the other parts of a face



Fig. 61

For if these spirits all had exactly the same force and if there were no other cause determining that the gland lean this way or that, then they would flow equally in all its pores and keep it erect and immobile at the center of the head.

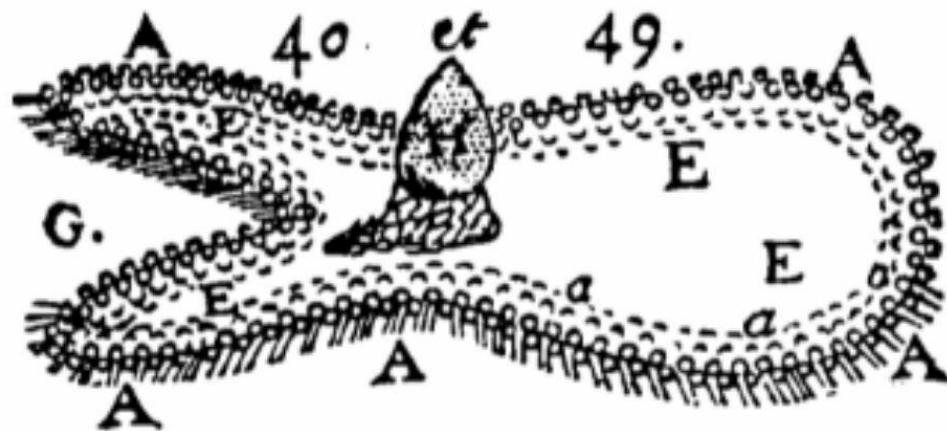


Fig. 62

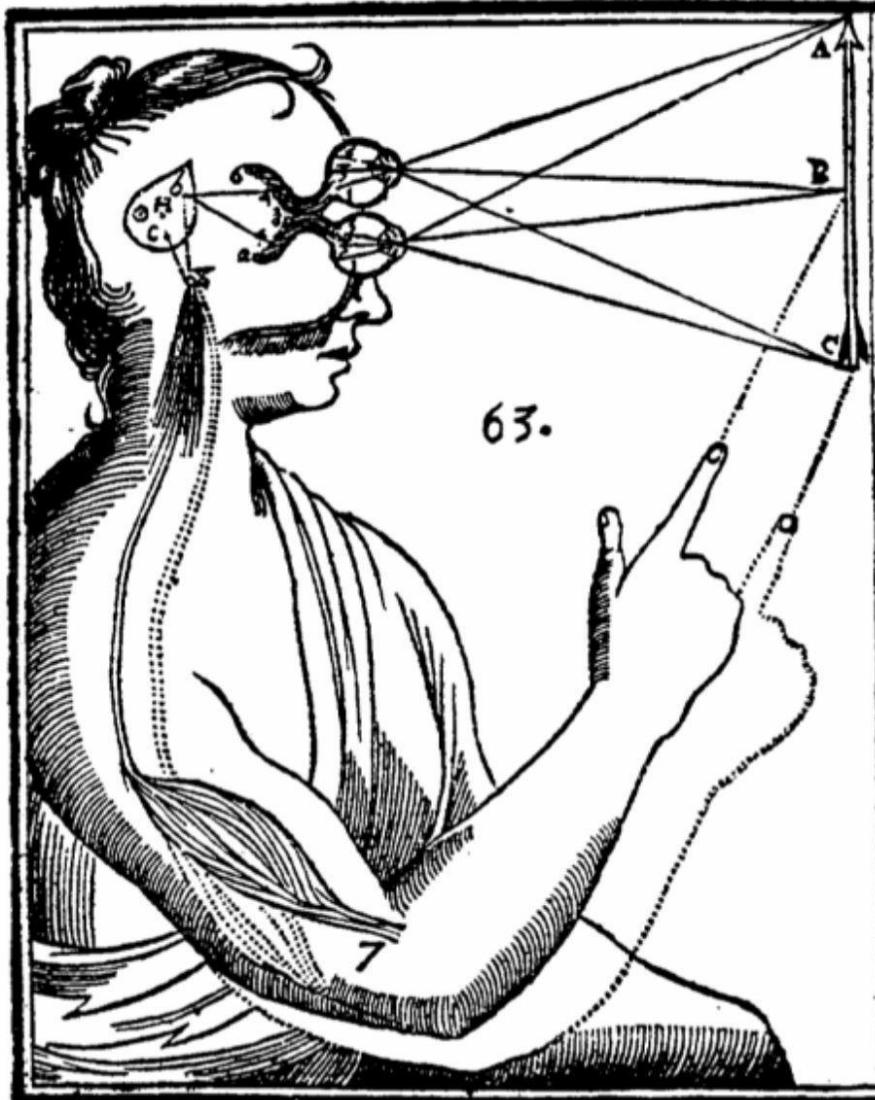


Fig. 64



Fig. 65

Part 5

Moreover, it should be noted that when gland is inclined in one direction by the force of the spirits alone, without the aid of either the **rational soul or the external senses**, the ideas which are formed on its surface derive not only from inequalities in the tiny parts of the spirits causing corresponding differences in the humours, as mentioned earlier, but also from the imprints of memory

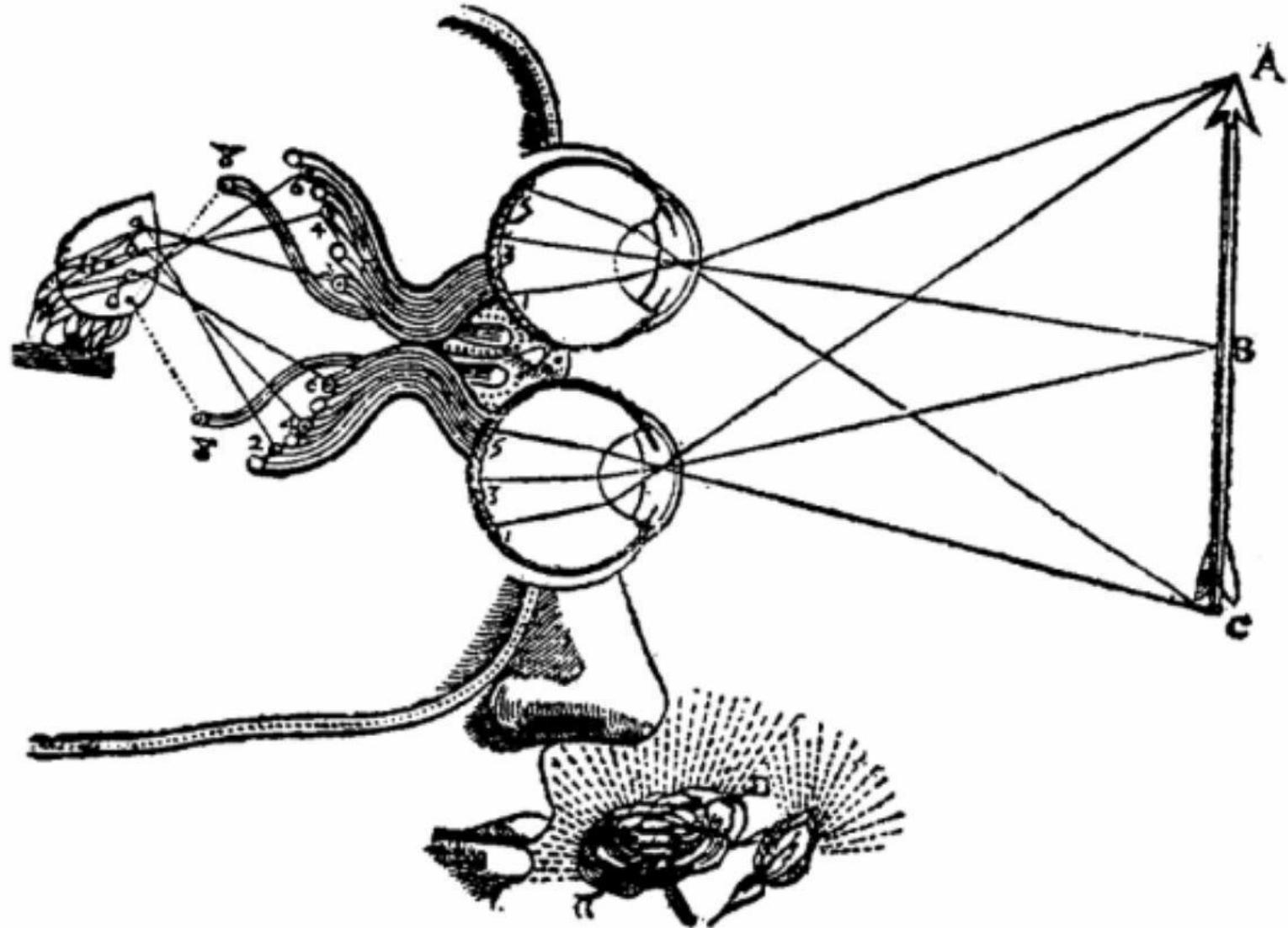


Fig. 66

Part 5

The first is the place from which the action that opens those tiny tubes through which the spirits first enter proceeds.

The second is the force, and all the other qualities of this action.

The third is the disposition of the tiny fibres that make up the brain.

The fourth is the unequal force that the different parts of the spirits can have.

The fifth is the different positions of the external bodily parts.

The sixth is the interconnection between the many actions that move the senses at the same time.



Fig. 68



Part 5

-if it turns out that the strongest of these parts are those which now tend to flow toward certain nerves, and then immediately after towards their opposites, the machine will be imitating the movements seen in ourselves when we hesitate and are **in doubt** about something.

-Similarly, if the action of the fire a lies somewhere between actions that can conduct the spirits toward *r* and those that can conduct them toward *p*, that is, between those causing pain and those causing **pleasure**

Part 5

During Sleep :

- The actions of external objects are for the most part prevented from reaching the brain and being sensed; and the spirits in the brain are kept from reaching the external bodily parts so as to move them.
- images formed in dreams can be more distinct and more lively than those formed during waking

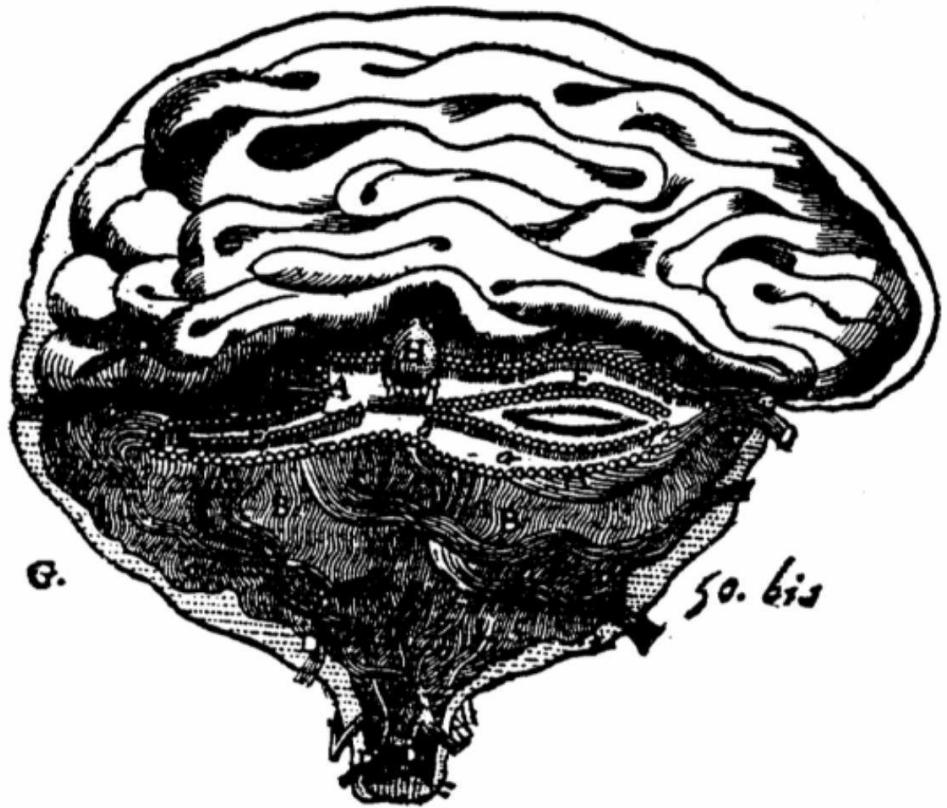


Fig. 69

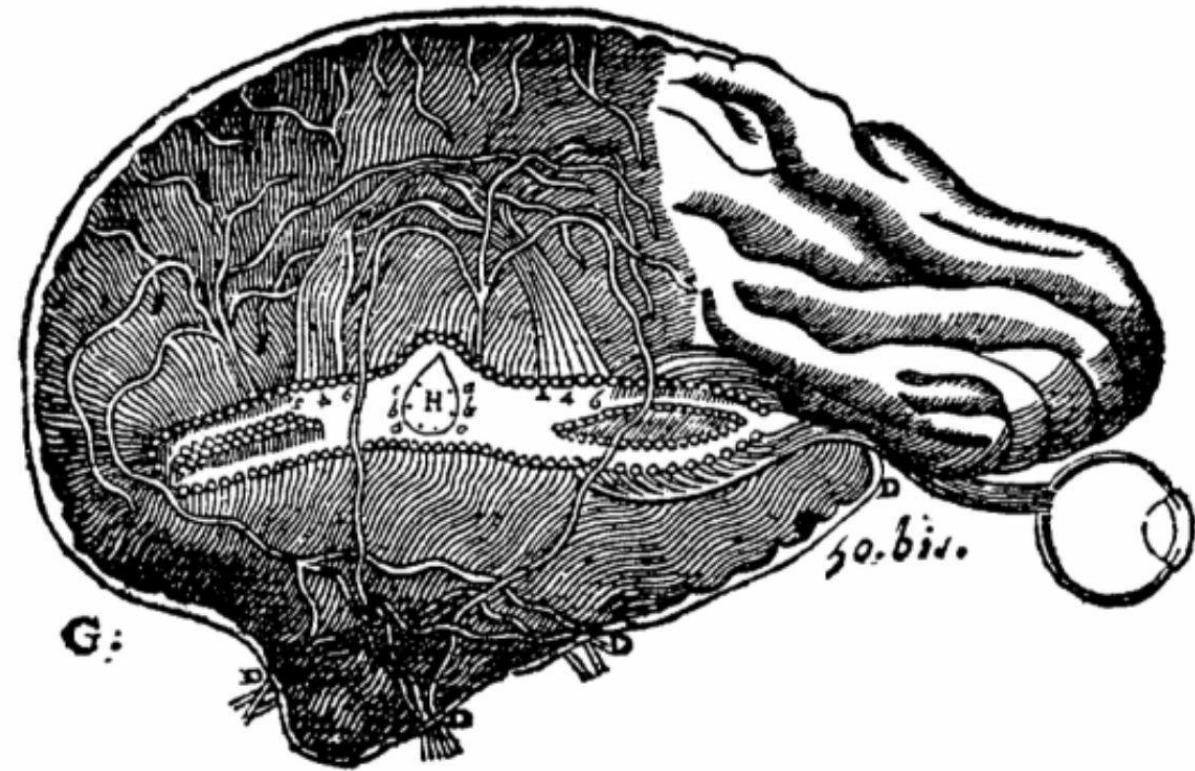


Fig. 70

Part 5

these functions follow in this machine simply from
the **disposition of the organs** as wholly naturally as the movements of a
clock or other automaton follow from the disposition of its counterweights
and wheels. To explain these functions, then, **it is not necessary**
to conceive of any vegetative or sensitive soul, or any other principle of
movement or life, other than its blood and its spirits which are agitated
by the heat of the fire that burns continuously in its heart, and which is
of the same nature as those fires that occur in inanimate bodies

References

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- **Descartes: Treatise on Man**, tr. T. S. Hall (Cambridge: Harvard U.P., 197z) → selected version by Colorado University