Death never comes to pass by reason of the soul, but only because some one of the principal parts of the body decays: and we may judge that the body of a living man differs from that of a dead man just as does a watch or other automaton (i.e. a machine that moves of itself), when it is wound up and contains in itself the corporeal principle of those movements for which it is designed along with all that is requisite for its action, from the same watch or other machine when it is broken and when the principle of its movement ceases to act.

Rene Descartes

Chapter 2

Cartesian Machine-Body and Modern Medicine
In this chapter, an attempt is made to have an analytical understanding of Descartes’ concept of body and its implications for modern medicine. Particularly, the focus of our attention would be on 1) Cartesian thinking of body in terms of machine, 2) concept of body as the locus of epistemological and moral error, 3) concept of mortality and life and 4) the implications of Cartesianism for the so called bio-medical model. Precisely, we would try to argue that Cartesian notion of body as a repairable machine constitutes the paradigm of modern medicine. For developing this argument we seek help from thinkers like Drew Leder who have contributed much towards a critique of modern medicine.

2.1. **Historical roots of Cartesianism.**

In the seventeenth century, Rene Descartes introduced a fundamentally new concept of body. He presented his notion of body by attacking the Aristotelian views of nature. Concepts incorporated in Aristotelian views were quite popular and dominant in his day. As a matter of fact, the Cartesian theories aimed at throwing out all animation and teleology from the natural realm, attributing such properties to the creator God alone. The human body was fully identified by him with the passive nature. As such it appeared as mere res-extensa manifesting no intelligence or power of self movement. These activities
were ascribed to mind, *res-cogitans*, to the essence of self conceived as the divine aspect of human being.

Undoubtedly, Descartes represented a significant phase in Western thought by splitting human entity into body and mind. As the historians of ideas observe, between 1500 and 1700 there was a remarkable shift in the way the people pictured and thought of the world. The new way of thinking and perception of the universe provided western civilization the features that are characteristic of the modern epoch. For the past three hundred years this has been the paradigm of human thinking.

Before fifteenth century, mutual relationship between the spiritual and material phenomena was the basis of the human experience of nature. Aristotle and Church were the authorities which framed the scientific outlook of the world view. In the thirteenth century Thomas Aquinas combined Aristotle’s comprehensive system of nature with Christian theology and ethics. In doing so he established the conceptual framework that remained unquestioned throughout the Middle Ages.

As we see, sixteenth and seventieth centuries witnessed the substitution of the notion of an organic, living and spiritual universe with the notion of
world as a machine. Resultantly, the world-machine metaphor became the dominant imagery of the modern era. The science of the seventieth century was based on a new method of inquiry advocated forcefully by Francis Bacon. It involved the mathematical description of nature and the analytical method of reasoning conceived by the genius of Descartes. Acknowledging the crucial role of science in bringing about these far reaching changes, historians have called the sixtieth and seventieth centuries, the Age of the Scientific Revolution.

Scientific Revolution began with Nicolas Copernicus, who overthrew the geocentric view of Ptolemy and the Bible that had been accepted dogma for more than a thousand years. After Copernicus the earth was no longer the centre of the universe but merely one of the many planets circling a minor star. Till time, man has been the centre of God’s creation as earth being considered at the centre. As the result of Copernican revolution, man lost this proud position.

Johannes Kepler, followed by Copernicus, searched for the harmony of the spheres and was able to formulate his celebrated empirical laws of planetary motion. His views further supported the Copernican system. It was Galileo who established the Copernican hypothesis as a valid scientific theory. Galileo was the first to combine scientific experimentation with the use of mathematical
language. He employed mathematical ideas to formulate the laws of nature he discovered and hence he is considered as the father of modern science.

Rene Descartes is usually regarded as the founder of modern philosophy. He was a brilliant mathematician and his philosophical outlook was profoundly affected by the new physics and astronomy. He did not accept any traditional knowledge, but set out to build a whole new system of thought. The belief in the certainty of scientific knowledge lies at the very basis of Cartesian philosophy and of the world view derived from it.

Modern science owes a great deal to Descartes’ method of thought and his view of nature. Following the path of radical doubt, he proceeds to doubt all traditional knowledge, the impression of his senses, and even the fact that he has a body-until he reaches one thing he cannot doubt, the existence of himself as a thinker. Thus he arrives at his celebrated statement *Cogito ergo sum* or ‘I think therefore I am’. From there Descartes deduces that all the things we conceive clearly and distinctly are true.

At a glance, one can see his whole view of nature rests on two independent and separate realms, that of mind or *res-cogitans*, the thinking thing, and that of matter, or *res-extensa*, the extended thing. For him the material universe was
a machine and nothing but a machine. Nature worked according to mechanical laws, and everything in material world could be explained in terms of the arrangement and movement of its parts. The drastic change in the image of nature from organism to machine had a strong effect on people’s attitudes towards the natural environment. The Cartesian view of the universe as a mechanical system favored the manipulation and exploitation of nature in a ‘scientific’ way that has become typical of western culture.

The mechanistic view of Descartes on matter is applicable to the living organisms as well. Plants and animals were considered as simply machines. As far as human body was concerned, it was indistinguishable from an animal machine. To Descartes all living organism were nothing but ‘automata’. His philosophical activities were to explain how the motions and various biological functions of the body could be reduced to mechanical operations. In doing so he was strongly influenced by the pre-occupation of the seventeenth century artful ‘lifelike’ machinery that delighted people.

Descartes was fascinated by these automata and he compared their functioning to that of living organisms. He says: “We see clocks, artificial fountains, mills and other similar machines which, though merely manmade, have nonetheless the power to move by themselves in several different ways.”
I do not recognize any difference between the machines made by craftsmen and the various bodies that nature alone composes." Clock making in particular had attained a high degree of perfection by Descartes’ time. Descartes compared animals to a clock composed of wheels and springs. He extended his comparison to the human body. Descartes says “I consider the human body as a machine. . . . my thought . . . . compares a sick man as ill made clock with idea of a healthy man and a well made clock.”

For Descartes, as for Plato before him, the true self is often identified primarily with the mind or soul. The human capabilities are attributed to an immaterial mind and the notion of body is material. To Descartes, the faculty of reason is located within mind and the body is regarded as devoid of higher cognition. It comes to be identified primarily with mindless passions or passive ‘automaticities’. Moreover, a human being is formed on the mind-body dualism and the body plays the role of a secondary or inessential element according to Descartes. Descartes writes in The Discourse, “This me, that is to say, the soul by which I am what I am, is entirely distinct from body.” Conceived of as the locus of subjectivity, it is the soul to which the first-person predicate is applied.
2.2. The Automation-Model

The publication of Rene Descartes’ *Discourse on Method* marks one of the most significant turning points in the conception of the body in the European tradition. With this we witness surprising new ways for conceiving the body as an anatomical, technological and philosophical entity. As Dalia Judovitz notes, these include the anatomical redefinition of the body in terms of the circulation of blood, its technological re-synthesis as a machine, and its philosophical reduction to a material thing. Descartes’ definition of the body is based on two newly emergent systems of reference: First, Harvey’s anatomical discovery of the circulation of blood and secondly, mechanical analogies that rely on the mathematization of nature.

Descartes’ account of the circulation of blood in the *Discourse on Method*, part 5, is significant. His account asserts to give a description of the body based on anatomical principles. And his effort to valorize blood, as opposed to other bodily humors, involves a fundamental shift in the conception of the body as well. Harvey describes the circulation of blood as a closed circle, thereby preserving blood against consumption. This self-enclosure of blood within the pathways of the arterial-venal system establishes it as an autonomous
system of exchange within the body. “The continuous and circular movement of blood insures both the preservation and re-generation of the body.”

The heart emerges to be the life principle of body in Harvey’s system. And the idea of heart as the guiding principle of life is perceptible throughout the body in the physical form of the pulse movements. Harvey compares the heart to various mechanical devices such as pump, fire engine or hydraulic devices. But these mechanical analogies too reflect an Aristotelian vitalist view regarding the centrality of the heart, rather than a mechanical worldview. It is interesting to note that despite his mechanist tendencies, Descartes does not appropriate Harvey’s interpretation of the heart as a pump. He explains the motion of blood as a result of the generation of heat in the heart, a position that he believes to be different from Aristotle.

Our arterial-venal system has got circuitous nature, autonomy and centrality. This nature of our arterial-venal system provides Descartes a physical analogue to his philosophical reflections regarding the centrality and the autonomy of the cogito in part 4 of the Discourse. Here, Descartes describes the cogito as based on total negation of its counterpart, the body. “And then, examining attentively that which I was, I saw that I could conceive that I had no body, and there was neither world nor place where I might be: but yet I
could not for all that conceive that I was not.”\(^5\) The validity of the *cogito* is founded on its radical denial of all bodily and material qualities. *Cogito* is affirmed on the elimination of material qualities with a new form of existence. The over-emphasis of the *cogito* replaces the material reality of the body and its place in the world. Descartes removes *Cogito* from the realm of worldly existence by defining it purely as a substance of which the whole essence is to think.

### 2.3. Machine and Nature

The analogy of the human body to mechanical devices was not new to the seventeenth century, but dated back to the late Middle Ages. In his *Treatise on Surgery*, Fowler compares surgery to the mechanical arts, specifically to architecture. He defines the body “as the instrument of the soul and dismembers this instrument, its constituent parts analogous to various mechanical devices involved in artisan’s production: the lungs are compared to the bellows of a blacksmith, the elbow to a pulley etc.”\(^6\)

Descartes’ analogy of the human organism to a machine departs from these earlier formulations as Cartesian machine acquires a new network of meanings. It is an instrument for the transformation of natural forces or well
arranged parts that can function autonomously. It can also signify a combination of machines of varying degrees of complexity.

As Judovitz says, in Descartes’ time the word machine also has an additional meaning, that of a trick or a machination. Descartes uses the word machine as a learning device in which the earlier meaning is implicit. In a way, machines could be treated as the symbol of human creativity in the sense that it is capable of manipulating the nature. The machine in Descartes’ works is not merely a technical and mechanical analogue of nature; rather, its well-defined semi man-made character indicates the elimination of the distinction between the natural and the man-made. In *Treatise on Man*, Descartes says:

I suppose the body to be nothing but a statue or machine made of earth, which God forms with the explicit intention of making it as much as possible like us. Thus God not only gives it externally the colors and shapes of all the parts of our bodies, but also places inside it all the parts required to make it walk, eat, breathe, and indeed imitate all those of our functions which can be imagined to proceed from matter and to depend solely on the disposition of our organs.

We see clocks, artificial fountains, mills and such other machines which, although man-made, have the power to move on their own accord in many different ways. But I am supposing this
machine to be made by the hand of God, and so I think you may think it capable of a greater variety of movements than I could possibly imagine in it and of exhibiting more artistry than I could possibly ascribe to it.\textsuperscript{7}

Briefly referring to the biblical creation of the body as a statue made of earth, Descartes rewrites this mythic origin by suggesting that this body is also a machine deliberately made to resemble the human. His description of the human body as a statue and then as a machine undermines its biblical status as a vessel that is animated by the breath of God. Endowed with the external semblance of the human body, this artificial replica mechanically imitates human functions, such as walking, eating and breathing. The fact that Descartes includes breathing among these mechanical functions alerts us to the secularization of the body, insofar as it is removed from the sacred purview of the \textit{pneuma} (breath, or soul).

As Drew Leder says, this secularization, implicit in the removal of the body from the realm of the creation, is accompanied by its dehumanization. Descartes describes human functions in purely mechanical terms. It results in a sort of dehumanization in the sense that lived body ceases to be an organic reality. His conception proceeds from matter and depending solely on the disposition of the organs. These mechanical analogues simulate elements
involved in the organization of the lived body only to sublate them technologically. This conflation of the material and mechanical aspects of the organization of the body with its overall definition as an organism will lead to the reassignment of the human to the mind, instead of the body.

The human technical creativity is underlined in Descartes’ subsequent mention of man-made machines such as clocks, artificial fountains and mills that have the power to move of their own accord. Just as artisan produces machines with the power to move on their own, God creates human as an infinitely complex mechanical device. So this reference becomes a testament to God’s superior productive capacity. According to Descartes’ account, “God the creator becomes God the fabricator, the consummate artisan who disposes of infinite resources and artistry.”

The gesture of divine creation that constitutes the realm of the natural world is now redefined as a form of fabrication that permanently blends technique and art. The natural world is thus sublated by the artificial logic of the artifact, just as the body is replaced by its mechanical specter-the automaton. “The intention behind the construction of an automaton was to copy nature, but in the Cartesian theory of life the automaton serves as an intelligible
equivalent of nature. There is no room in Cartesian physics for an ontological
difference between nature and art.”

The Cartesian automaton does not copy nature. Becoming nature’s
intelligible equivalent the Cartesian automaton seeks to gain dominance over
nature. In so doing, it combines organization with fabrication and erases the
distinction between nature and art. This can be seen in Descartes’ claim in
Principles of Philosophy that “it is not less natural for a clock, made of the
requisite number of wheels, to indicate the hours, than for a tree which has
sprung from this or that seed, to produce a particular fruit.”

Descartes secularizes divine creation by equating it with human technical
and artistic creativity and removes the distinctions between nature and art.
Also, he goes a step further by suggesting that nature itself, in making animals,
has created automatons superior to artificial ones. “Since art copies nature and
people can make various automatons which move without thought, it seems
reasonable that nature should even produce its own automatons, which are
much more splendid than the artificial ones-namely, the animals.”

Descartes appears to recognize the superior powers of nature as it
produces animals. He considers them to be nothing more than automata that
are more accomplished than man-made, artificial ones. In the process, nature as source of creation for animate life is replaced with an interpretation of nature as perfect artisan. And the superior technical achievements of nature represent a higher degree of expertise measured in terms of a human scale.

As we saw, when Descartes mentions machines to explain how the organism works, he relies on the technical devices of his time: clocks, artificial fountains, water mills, etc. But in the Treatise, Descartes frames his mechanical analogies for the human organism by presenting them in an elaborate garden setting. Here, grottoes and fountains, constitutive elements of landscape architecture, function as marvelous embodiments of the human body represented as a mechanical system:

Similarly you may have observed in the grottoes and fountains of the royal gardens that the mere force with which the water is driven as it emerges from its source is sufficient to move various machines, and even to make them play various instruments or utter certain words depending on the various arrangements of the pipes through which the water is conducted. Indeed, one may compare the nerves of the machine I am describing with the pipes in the works of these fountains, its muscles and tendons with the various devices and springs which serve to set them into motion, its animal spirits with the water that drives them, the heart with the source of water, and the cavities of the brain with the storage
tanks. Moreover, breathing and other such activities which are normal and natural to this machine, and which depend on the flow of the spirits, are like the movements of a clock or mill, which the normal flow of water can render continuous.\textsuperscript{12}

Instead of simply describing the body in mechanical terms, he now stages its workings as that of a garden landscape. The mechanical complexity that underlines Descartes’ description of the human body is represented as expertise involved in landscape architecture and engineering. He describes garden landscape as a complex system with various kinds of machines which work on the structural and hydraulic principles that keep it in continuous motion. The human body is represented as a combination of various technical devices, parts of it operating like springs and others operating like channels and storage tanks, that is, passage for the flow, pressure, and circulation of blood and the animal spirits.

What is notable in Descartes’ discussion is the fact that the system for the circulation of blood also doubles as the carrier of animal spirits. “The animal spirits represent the most rarefied and subtle parts of the blood that are separated through a process of mechanical filtration (based on the smallness of pores) into the pineal gland situated in the brain cavity.”\textsuperscript{13} These minute corpuscles “cease to have the form of blood,” since they attain an almost immaterial status.
Their subtlety or fineness is such that they take on the character of a “very fine wind” or rather a “very lively and pure flame.”

Descartes compares the nervous system with that of the system of pipes in the garden. He identifies neural circulation as a hydraulic model involving tiny doors or valves placed in nerves. The nerves are animated by the passage of animal spirits that have the power to change the shape of muscles. The physiological processes are explained in terms of the activity of animal spirits and it is explained by mechanizing the nervous system attributing the function of automation. What is brilliant about the Cartesian model for the human body is that its hydraulic circuitry simultaneously accounts both for the circulatory and the nervous system. It also serves as a passage for the animal spirits, intangible substances that visibly animate the body.

Descartes pursues his analogy of the human body with the garden of his time, comparing external objects and their capacity to stimulate sense organs with garden visitors who unwittingly trigger mechanisms that set an elaborate spectacle in motion:

External objects, which by their mere presence stimulate its [the body’s] sense organs and thereby cause them to move in many different ways depending on how the parts of its brain are
disposed, are like visitors who enter the grottos of these fountains and unwittingly cause the movements which take place before their eyes. For they cannot enter without stepping on certain tiles which are so arranged that if, for example they approach a Diana who is bathing they will cause a Neptune to advance and threaten them with his trident; or if they go in another direction they will cause a sea-monster to emerge and spew water onto their faces; or other such things according to the engineers who made the fountains.  

Instead of presenting sense perception in technical terms, Descartes demonstrates it as a vast garden and its complex system to illustrate its mechanical character. The artifice of the hydraulic machine functions here as an analogue for the human. The choreographed movements of these devices triggered by the movements of the spectators suggest their autonomous existence. As these figures appear to respond and interact this also suggests the illusion of personality and even psychology. The seemingly autonomous movements of these machines create the illusion of agency; they mechanically ghost the human, since they appear to be moving as if by their own accord.

In the conclusion to his Treatise on Man, Descartes returns to his earlier elaboration regarding the relation of bodily parts to their requisite functions by repeating his materialist and machinist position: “these functions follow from
the mere arrangement of the machine’s organs every bit as naturally as the movements of a clock or other automaton follow from the arrangements of its counter-weights and wheels.” The movements or the functions of a body proceed solely from matter and the disposition of the organs, understood as the wheels and cogs of a machine.

The capacity for movement is based solely on the internal arrangement and disposition of bodily parts and does not require an external principle of animation. Actually these movements generate illusion in the spectators and conceive it to be a living body. As Descartes subsequently explains, these organic functions permit the machine to be conceived to a “vegetative or sensitive soul or other principle of movement and life, apart from its blood and animal spirits.” Descartes here rejects the medieval conceptions of the soul as vegetative and sensitive entities that animate the body. And by its rejection he emphasizes the purely material and mechanical nature of the body.

Renaissance creates an animistic interpretation of nature in the sense that it has vitality and life. But Descartes’ identification of the soul with reason goes against this interpretation of nature. Earlier in the Treatise Descartes notes that “when a rational soul is present in this machine it will have as its principal seat the brain and reside there like the fountain-keeper.” The rational soul
resides in the mechanized body as the ghost in the machine, the centralized fountain-keeper, sole agent and administrator of the mechanized functions of the body. The immaterial presence of the rational soul that haunts the automated body controls its bodily and material manifestations.

As Descartes later explains to Regius, “There is only one soul in human beings, the rational soul; for no actions can be reckoned human unless they depend on reason.”21 A human becomes a human only if it has a rational soul because all forms of agency achieve their humanity through their dependence on reason alone. Thus the locus of the human becomes the mind alone defined as consciousness, intellection, and volition.

Equating body with machine and removing the living agency from all aspects of body reduces it into the realm of animality. Hence it is understood no longer as a natural phenomenon but as the ultimate embodiment of artifice and mechanics. Descartes considers animals to be like clocks, that is, machines governed by the disposition of their organs and not by reason22 Thus the reification and secularization of the human soul to a purely rational entity is accompanied by the total mechanization of the corporeal body. This ends with a materialist reduction in the sense that all the spiritual elements are removed.
from it. And hence they may be perceived purely as effects created through material causes alone.

In part 5 of the Discourse on Method, Descartes proceeds to summarize the mechanical analogies elaborated in his Treatise on Man by reaffirming the equation of the body to automata and moving machines. He also repeats his earlier point elaborated in the Treatise regarding the analogy of the body to a machine. There, the machine is product of human creativity and invention. Descartes mentions this to reaffirm the superiority of the human body as a product of the creativity of God. The perfectibility of the human body as a machine brings Descartes back to the question of how to distinguish the human from its mechanical analogues. If there exist such machines, capable of both resembling our body and simulating its actions, then a fundamental question arises regarding how to distinguish the human from its inhuman, mechanical doubles:

On the other hand, if there are machines which bore a resemblance to our body and imitated our actions as far as it was morally possible to do so, we should always have two very certain tests by which to recognize that, for all that, they were not real men. The first is, that they could never use speech or other signs as we do when placing our thoughts on record for the benefit of other….And the second difference is, that although machines
can perform certain things as well or perhaps better than any of us can do, they infallibly fall short in others, by which we may discover that they did not act from knowledge, but only from the disposition of their organs.23

Descartes’ appeal to speech or signs as the distinguishing mark of the human relies on his glorification of reason. However, the reason in question here is no longer the disembodied thought of the cogito, defined by its self-identity and transparency. Rather it is an embodied reason that makes itself visible and perceptible precisely because of its communicative, representational and inter-subjective character. As Jean-Pierre Seris points out: “The loquela, the speech, performance and usage proper to human language is the unique and certain indicator of the presence of a soul that thinks in the bodies of others.” Seris’s emphasis on language as the defining characteristic of the human is based on Descartes’ explicit references to language in the Discourse.

However, Descartes’ appeal to speech and sign suggests a more general appeal to the subject’s capacity for representation. This capacity is understood as the manipulation and recording of signs, be they verbal or nonverbal. As Descartes observes in the Discourse, even the deaf and the dumb are able to use signs to make themselves understood24 Descartes’ statement regarding
man’s use of speech and other signs locates the humanity of the subject within the realm of representation.

Descartes’ second distinction between the human and the machine relies on his critique of the machine as a thing whose capacity to act is limited precisely because of its purely instrumental character. But it is important to keep in mind that when Descartes criticizes the instrumental nature of the machine, he also necessarily touches to his earlier equation of the body to the machine. He goes on to claim that, “while reason is a universal instrument that can serve all contingencies, organs need special disposition or adaptations for each particular action”. Hence, Descartes concludes, it is impossible that there would be sufficient diversity in any machine to act in all events of life.

Thus, while machines may be able to perform certain functions better than we do, in the end they are limited by the fact that they do not act out of knowledge but simply out of the disposition of their organs. Descartes’ critique of the machine serves as a strategic device to highlight the omnipotence of reason as the true and sole referent for the human. It also underlines the dependence of the body on reason.
2.4. **Body as a locus of epistemological error**

Epistemological concerns are at the centre of much of the Cartesian project. Descartes inquires as to how we can achieve truth and certainty in our investigations of the world. He finds the answer in the human mind itself. In the *Discourse on Method* and the *Meditations*, Descartes suggests that it is the indubitability of one’s own thinking that yields the first certainty on which all other truth must rest. Informed by the ‘light of nature’ able to apprehend clearly and distinctly the existence of God and propositions of logic and mathematics, the mind can then progress to more specific forms of knowledge.

In the *Rules for the Direction of the Mind*, Descartes had already sketched out the deductive procedures through which we may advance from indubitable propositions to the securing of new truths. It is via the proper use of the rational intellect the truth is revealed and ascertained.

The body, on the other hand, is conceived of as that which naturally inclines us to error. This is not to say that the body is an unavoidable cause thereof. As a passive machine, devoid of fundamental agency, the body does not have the power to deceive the careful mind. Hence, the direct cause of error is the faculty of will when it exceeds the reach of the understanding. 


Insofar as the mature mind is trained to suspend decision prior to the achievement of clear and distinct apprehension, error can in all cases be avoided.

Nevertheless, the body constitutes the primary force that clouds the intellect and seduces the will to err. This begins from birth, before the powers of the human mind are developed enough to counter the ill effects of its union with the body. “Indeed in our early years, our mind was so immersed in the body, that it knew nothing distinctly, although it perceived much sufficiently clearly; and because it even then formed many judgments, numerous prejudices were contracted from which the majority of us can hardly ever hope to become free.”

We came to believe through the force of bodily sensations that things outside of us have not only magnitude, figure, and movement, but taste, smell, color, and other such qualities that arise only within the subject. In the *Principles of philosophy*, Descartes labels this childhood prejudice the principal cause of error, nothing that it continues to exert its power even after we reach the age of maturity. Moreover, as a result by its corporeal associations, the mind finds it extremely difficult to engage in intellection purified of the senses or imagination. The consequence is further deception; we not only misconstrue the nature of material objects but tend to believe in the existence of immaterials.
Thus according to Descartes, the human will and intellect are always engaged in a re-argued action against an ever present deceiver. Mistakes are not so much a matter of the mind positively choosing to err as failing to undo the distortions that the body has introduced. To uncover truth is to forcibly bring this body to heel: “I shall now close my eyes, I shall stop my ears, I shall call away all my senses, I shall efface even from my thoughts all the images of corporeal things, or at least I shall esteem them as vain and false.”

It is true that by the end of the Meditations, Descartes recognizes a certain circumscribed validity to bodily perceptions. Because God is fundamentally non-deceptive, Descartes is sure that the perceived world is not a complete illusion and external bodies do exist. Moreover, he has reached assurance that “my senses more frequently indicate to me truth than falsehood respecting the things which concern that which is beneficial to the body.” Sense perceptions were placed within us to signify what is useful or harmful to us as composite beings and are mostly reliable within this pragmatic context.

However, in relation to the truth that principally interests Descartes, that is, scientific truth concerning the essence of external objects, “they can teach me nothing but what is most obscure and confused.” As did Plato before him, Descartes refers to the body as a “prison” within this epistemological context,
that which exerts “an obstructive effect on the soul . . . always a hindrance to the mind in its thinking.”

2.5. Body as a locus of Moral Error

As it is noted by many, there has been an unshakable distrust of bodily passions and desires in the western tradition. It could be so in a tradition in which particularly Platonic and Christian theological ideas were dominant. In the context of passion, body has become a locus of moral error. Descartes moral psychology is far less developed than his epistemology and metaphysics.

It is in the Passions of the Soul that Descartes systematically addresses the place of the body in relation to the good life. “Passion” of the soul, in Descartes’ primary usage, is a feeling or emotion principally caused, maintained and fortified by the body. We can see a sort of similarity in Descartes’ moral characterization of the passions and epistemology of the senses. As beings with a body, sense perception yields a certain pragmatic truth concerning what is beneficial to us. It is same with the passions as well. “Their natural use is to incite the soul to consent and contribute to the actions which may serve to maintain the body, or to render it in some manner more perfect.”
So, like senses, the character of natural utility of passions also has a tendency to deceive. There are many things hurtful to the body that cause no sadness or even produce joy. In the same way, there are many beneficial things that seem to us unpleasant. Thus the passion may lead us to act against our better interests. Though they are properly aligned the passions still mislead via power of exaggeration. They almost always cause the good things as well as the evil to seem much greater and more important than they are. They provoke us to seek after the one and flee from the others with more enthusiasm and care than is desirable. Corporeal passions involve fleeting pleasures and pains, not the more durable goods of the soul. For all such reasons, the body-based emotion distorts the true nature and import of objects in our life. The body misleads us from better life as it does with scientific truth.

Thus, Descartes seeks for practical strategies to overcome the issues concerning with the problem of body in ethical as well as epistemological sphere. As he recognizes, one cannot simply keep away from passions given its strong physical base. But, one can suspend judgment in relation to the senses until proper understanding is reached. In the same way action can also be suspended in the face of strong emotion. He advises self-control until the initial passions are silenced or the reasons that oppose our bias are carefully considered. Eventually, through reflection on counter arguments and examples one can
even change one’s emotions oneself. Through such mechanisms, ‘there is no soul so feeble that it cannot, if well directed, acquire an absolute power over its passions\textsuperscript{35}.

Descartes was not an anti-emotionalist as extreme as certain of his religious predecessors. According to Descartes, passions are good in their nature if their evil uses and excesses are avoided. Many passions are pleasurable. They can fill positive thought in us and act to reinforce our qualities. However this proper utility is realized only under the direction and mastery of the soul. Reason must continually supervise the reactive tendencies and deceptive pulls which the body has. Virtue thus involves “a firm and contestant resolution to carry out what ever reason recommends without being diverted by passion or appetite.”\textsuperscript{36}

2.6. The Mortal Body

The concept of the mortal body is central to Descartes’ methodology and metaphysics. In the prefatory note to the \textit{Meditations}, he sets two major goals. The first is to provide proof of God’s existence, while the second involves introducing philosophical grounds for the belief that the human soul does not perish with the body.
The famous Cartesian proof for the mind-body distinction obviously refers to the immortality of soul. He writes in *Discourse of Method*: “As a matter of fact, when one comes to know how greatly they differ, we understand much better the reasons which go to prove that our soul is in its nature entirely independent of body, and in consequence that it is not liable to die with it. And then, in as much as we observe no other causes capable of destroying it, we are naturally inclined to judge that it is immortal.”

As pointed out by many, Descartes’ interest in the immortality of the soul is not simply a pretense designed to satisfy the church. It is one of the existential concerns of Descartes. For example, in a letter to Huygens he confesses that religious teachings on the afterlife fail to convince; he, as most men, needs the testimony of “evident natural reasons” to support the notion that our souls “last longer than our bodies, and are destined by nature for pleasures and felicities much greater than those we enjoy in this world.”

The threat posed by the mortal body helped to provoke not only Descartes’ metaphysical, but his scientific work. He himself regarded as the chief end of his studies the development of a new medicine that would overcome disease, free the human race from the infirmities of old age, and increase the life span.
The preservation of health, he argues, is ‘the chief blessing and the foundation of all other blessings’ in human life.

Descartes concludes *The Discourse of Method* by laying out the program of his future work: “But I will just say that I have resolved not to employ the time which remains to me in life in any other matter than in endeavoring to acquire some knowledge of nature, which shall be of such a kind that it will enable us to arrive at rules for medicine more assured than those which have as yet been attained.”

Descartes argues that scientific investigation aims at the preservation of health because health is quite crucial in one’s life. He is optimistic about the results a true science could yield as he maintains a rather low opinion of the medicine of his day. With the proper knowledge of causes and treatments one could be freed from diseases and ill health. Descartes never claims that he has realized this end through out his career. But, he did not give up therapeutic goal. Ten years after the writing of the *Discourse*, he reasserts the claim: “the preservation of health has always been the end of my studies.” It is with reference to this project that he begins the *Description of the Human Body* on which he was at work shortly before his death.
The personal nature of Descartes’ concern about death could be seen in his biographical writings. Descartes sought in later life to postpone death beyond what was considered humanly possible. In 1637 he writes to Huygens: “The fact that my hair is turning gray warns me that I should spend all my time trying to set back the process. That is what I am working on now, and I hope my efforts will succeed even though I lack sufficient experimentation.”

In a later letter he expresses hopes of living for more than a hundred years through maintaining proper habits, taking great pains to protect his health, and utilizing his medical knowledge. Ultimately all such efforts did not prevent a fatal encounter with pneumonia. Two days before he died, wracked with fever and convinced the end was near, Descartes spoke: “my soul, you have been a captive for a long time; now the hour has come when you must leave your prison, this body; you must bear this separation with joy and courage.”

Thus, a hidden unity of motivation could be seen in between Descartes’ metaphysical and scientific investigations. By making body free from soul-attributes and proving the body as repairable machine, Descartes sets the stage for modern medicine. Just as he sought a treatment for the deceptiveness of the senses and the passions he hopes to discover way to treat body’s delicacy as
well. He considers human intellect as the only medium which can find solutions for both.

2.7. Concept of life

As we have already seen, Descartes makes a radical break with the early traditions of Plato and St. Augustine. Unlike Augustine and many other medieval thinkers who understood the body as something corpse-like unless infused with soul, Descartes clearly draws a line to separate the soul as intellectual mind and the animal or vegetative life-soul. He regards the body’s own mechanical processes as the cause of physiological vitality. Descartes writes to Henry More: “I do not deny life to animals, since I regard it as consisting simply in the heat of the heart.” Nor is the cessation of life caused by the departure of soul:

Death never comes to pass by reason of the soul, but only because some one of the principal parts of the body decays: and we may judge that the body of a living man differs from that of a dead man just as does a watch or other automaton (i.e. a machine that moves of itself), when it is wound up and contains in itself the corporeal principle of those movements for which it is designed along with all that is requisite for its action, from the same watch.
or other machine when it is broken and when the principle of its movement ceases to act.\textsuperscript{44}

Descartes locates the principle of life directly in the body and not in the soul. But, as the above quote indicates, the body’s so-called life is modeled according to the workings of an inanimate machine. The body can constitute the place of life only because life itself has been fundamentally reconceived according to the ‘lifeless’.

As Descartes concludes the \emph{Treatise of Man}, “the fire which burns continually in its heart . . . . is of no other nature than all those fires that occur in inanimate bodies.”\textsuperscript{45} Without the soul’s presence, the body would remain an operative machine, but one devoid of any truly experiential life. This is to say that, the living body is not fundamentally different from the lifeless; it is a kind of animated corpse, a functional mechanism. As a matter of fact, modern medicine treats this ‘functional mechanism’. It is in this sense that critics point out lifeless body constitutes the paradigm of modern medicine. We shall come back to this point in the concluding section of this chapter.
2.8. The biomedical model

Descartes’ view of living organisms has had a decisive influence on the development of the life sciences. His world view maintained a strong influence on medical thinking. The Cartesian view of living organisms as machine, consisted of separate parts, provides the dominant conceptual frame work for Biology. All aspects of living organisms, according to the Cartesian model, can be understood by reducing them to their smallest constituents and studying the mechanisms through which these interact. This belief lies at the very basis of most contemporary biological thinking.

The development of biology has gone hand in hand with that of medicine. Naturally, the attitudes of physicians regarding the health and illness were also influenced by this mechanistic view of life which was once firmly established in biology. The influence of the Cartesian paradigm on medical thought resulted in the so called biomedical model. This model constitutes the conceptual foundation of modern scientific medicine. The human body is regarded as a machine that can be analyzed in terms of its parts. A disease is seen as the malfunctioning of biological mechanisms which are studied from the point of view of cellular and molecular biology. A doctor’s role is to intervene, either physically or chemically, to correct the malfunctioning of a specific mechanism.
Three centuries after Descartes, the science of medicine is still based on the notion of the body as a machine, of disease as the consequence of breakdown of the machine, and of the doctor’s task is to repair the machine.\(^46\)

### 2.9. The Dead Body and Modern Medicine

It has been already suggested that Cartesian thought is profoundly shaped by the figure of the dead body. It provides a tool for securing knowledge. And it rests at the heart of the mechanist world-view and its associated projects of mastery. As observed by many modern medicine is profoundly Cartesian in spirit.\(^47\) As such, this notion of embodiment, one in which the non-living takes primacy over the living, has extensively shaped medical theory and practice.

As Drew Leder points out, the epistemological primacy of the corpse has shaped not only medical technology, but diverse aspects of training and practice. Medical education still begins with the dissection of a cadaver, just as the clinical case ends in the pathologist’s lab. Death unveils the truths of the inner body and its diseases. A living patient is often treated in a cadaverous or machine-like fashion. We see this, for example, in the traditional physical examination, where patient is asked to assume a corpse-like pose, flat, passive, naked, mute. The entire context and thought programme serve to reduce the
living body to something almost dead. Personal identity is stripped away as the patient is removed from his or her habitual surroundings, activities and even clothes. Also, the patient’s voice is, for long stretches, silenced. Here, the doctor who performs the physical examination is an active and engaged explorer. But the patient is supposed to possess a corpse-like passivity.48

Given the vision of embodiment which underlies our disease categories and diagnostic methods, it is not surprising that the process often culminates in mechanistic forms of treatment. Drew Leder illustrates this with the help of many instances of medical treatment. Faced, for example, with a patient suffering from heart disease, the doctor may prescribe a drug which will bring about multiple physiological changes. Exercise may be recommended to strengthen the heart muscle, along with a diet to regulate blood pressure and atherosclerotic progression. If a surgical procedure is needed, the body is opened up and certain vessels may then be replaced. In each case, the doctor uses means which will alter the body as one would a mechanical thing, substituting parts, altering inputs and outputs, and regulating processes. In short, “at the core of modern medical practice is the Cartesian revelation: the living body can be treated as essentially no different from a machine.”49