

# 柏拉图后期对话篇中“身体(soma)”的原理性特征 ——柏拉图体育论再考的前提

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**摘 要:** 通过考察柏拉图后期对话篇中“身体(soma)”的原理性特征, 阐明柏拉图身体(soma)观。“身体(soma)”是具有极其宽广外延的词汇, 不仅指人的身体, 还代指动物的躯体、宇宙或天体的结构、丧失生命的尸体, 甚至具有构成基本元素(火、水、空气、土壤)的含义。身体(soma)在语义上如此广阔的外延, 是理解柏拉图身体观的背景。根据柏拉图临终前的著作《法律篇》, 原则上身体(soma)由3个特性规定, 即“空间性”、“运动性”、“感觉性”, 在理解这些特性时, 要与今天的物理性质进行判别, 捕捉柏拉图身体观的独到之处。其一, “身体的空间性”是指理念投射于充实空间呈现出的虚像, 借助理念几何学的形象化, 理念的“立体性质”得以表现; 其次, “身体运动性”所要阐明的是造成粒子(四元素)之间的“偶然”冲突的根本原因在于“必然”引发的杂乱、直线的“他动性”, 然而, 当身体与灵魂或“知性”发生关系时, 获得的则是自律而有序的圆周运动; 第三, “身体的感觉性”是指在粒子的立体结构的多样性中有缘由的苦闷(pathema), 苦闷由于“无知”和“偶然”被搁置, 会给灵魂及人体招致各种各样的恶事, 相反, 当“知性”主宰苦闷时, 苦闷反而会成为善的实现及秩序的恢复的能量。可以说, 在柏拉图后期的对话篇中, “身体(soma)”与“灵魂”“知性”“理念”密切相关, 被描绘成从属但作为必要条件存在。于是, 在考察被称为“身体”的人类的身体时, 同样要以上述原理性特征作为依据。

**关键词:** 哲学; “身体”; 体育; 柏拉图

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## The fundamental characters of soma in Plato's later dialogues: an introduction to the reanalysis of Plato's physical education theory

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**Abstract:** This paper aims to clarify Plato's view of soma through consideration of the fundamental characters of soma in Plato's later dialogues. Soma, which had a very large extension in classical Greek, denotes not only the human body but also the elemental bodies (fire, water, air, earth), the corpse, the cosmic body, the celestial body, the animal body, etc, and there also lies such a large extension in the background of the Plato's view of the human body. According to Laws, Plato's last work, soma has three common characters: spaciality, movability and sensibility, and takes on a different aspect from the body in the present age. Firstly, the spaciality of soma is the likeness of Form, which is copied into chora (the place of plenum), and it is the solid, which is geometrically formed by following Form. Secondly, the movability of soma is originally motion by others or disorderly and dotted linear motion, which is necessarily caused by the accidental collision between the particles, but in connection with Soul and Reason it becomes a pseudo-autonomous and orderly circular motion. Thirdly, the sensibility of soma is pathema (accidental affection), which is based on the multiplicity in the geometrical structures of the particles. Pathema in-

juries Soul and soma when it is left to Chance and Ignorance, but in the control of Reason it contributes to the realization of the good and the restoration of the order. Since soma, which has close connections to Soul, Reason and Form, is represented as such a subordinate and necessarily conditional existence in Plato's later dialogues, the human body, which is also called soma, should be considered on the basis of the above mentioned fundamental characters.

**Key words:** philosophy; soma; physical education; Plato

## 1 Introduction

In *Cratylus* and *Gorgias*, Plato states, "A body is a grave (soma sema)", and he regards the original life for the human beings as the separation of mind from the body after death<sup>1</sup>. In other words, immortal mind is divine substance independent of the body which always becomes and vanishes, while the body, causing various emotions and greed, is the prison for soul. In addition, it seems that the negative evaluation of the body by Plato had decisive influence on the later Western thought, and has been a hindrance to the studies of his physical education theory.

For example, there are the studies by Zeller<sup>2</sup>, Vlastos<sup>3</sup> and Brochard<sup>4</sup> mainly on "object" theory. It may be said that it is rare that Plato's study of the human body is examined after having been based on the results of these studies. As in an article by Cherniss<sup>5</sup>, the human body is discussed in particularity with regards to the problem of evil in Plato studies, and tends to be given some negative value.

However, in recent Plato studies, the human body has been set as the study object, while reevaluating Plato's study of the human body<sup>6</sup>. In my other paper<sup>7</sup>, I also point out a method used to clarify Plato's study of the human body, while I maintain Plato's above mentioned value hierarchy theory and, as the result, find a certain directionality in the study of Plato's physical education theory.

This paper aims to clarify Plato's view of soma through consideration of the fundamental characters of soma in Plato's later dialogues. Soma, which had a very large extension in classical Greek, denotes not only the human body but also the elemental bodies (fire, water, air, earth), the corpse, the cosmic body, the celestial body, the animal body, etc, and there also lies such a large extension in the background of the Plato's view of the human body.

I suppose that the fundamental characters of soma enables the synthetic grasp of various somata, and can relativize the modern view of the human body which became axiomatic in the present age. Furthermore, the formation causes of every soma and the grounds by which physical education is related to

the human body, based on the same fundamental characters, will be clarified thereby. The procedure of consideration is as follows;

Firstly, I will take up some examples of soma from *Laws*, which is a writing of Plato's later years, and analyze them (2. Soma in *Laws*). Secondly, I will clarify each fundamental character in order to demonstrate their relation, by referring to Plato's later dialogues (3. Spaciality of Soma, 4. Movability of Soma, 5. Sensibility of Soma).

Michitaroh Tanaka methodologically focuses on *Laws*, which is Plato's last work<sup>8</sup>. In this paper I, by following Tanaka, consider that his last work which is a voluminous work of all 12 books, is the collected his all philosophy theory that Plato arrived at in the decline of his life, and adopt the method to use *Laws* as a standard for the interpretation of Plato's philosophy.

We can find examples of most kinds of soma in *Laws*, except for a few exceptions (e.g. solid and sense medium). Therefore, it seems to have a methodological significance, enough to focus on *Laws* like Tanaka, when I examine Plato's study of the human body in the large extension soma. It would be possible, thereby, to gradually extend the scope of the consideration about soma from *Laws* to other later dialogues, middle dialogues, and early dialogues.

## 2 Soma in *Laws*

In *Laws*, a visitor from Athens and the two others draft out the polity and the laws concretely for a nation named Magnesia, built as a new colony in Crete. Regarding the human body (soma), they discuss the physical upbringing of an infant (Lg. VII 788D-789D), influence of natural environments to the human body (Lg. V 797C-D), a way of a burial of the corpse (Lg. XII 958D-E) in detail; "from the cradle to the grave".

Above all, in book X of *Laws*, it is proved that Soul is prior to soma as refutation to the atheistic natural philosophy. Soma is described as an "object" by comparison with Soul as follows;

**Athenian:** Moods and dispositions and wishes and calculations and true opinions and considerations and memories will

be prior to bodily (somata) length, breadth, depth and strength, if soul is prior to body (soma).

**Clinias:** Necessarily (Lg. X 896C-D)<sup>9</sup>.

In comparison with the various mentations belonging to Soul, the spatial properties belonging to soma are shown in this above passage. In addition, all of the mentations are called “prime-working motions” of Soul, and the motions of soma and many sensible qualities to accompany them are called “the secondary motions” in the next passage.

**Athenian:** Very well, then. Soul drives all things in Heaven and earth and sea by its own motions, of which the names are wish, reflection, forethought, counsel, opinion true and false, joy, grief, confidence, fear, hate, love, and all the motions that are akin to these or are prime-working motions; these, when they take over the secondary motions of bodies (somata), drive them all to increase and decrease and separation and combination, and, supervening on these, to heat and cold, heaviness and lightness, hardness and softness, whiteness and blackness, bitterness and sweetness, and all those qualities which soul employs, both when it governs all things rightly and happily as a true goddess, in conjunction with reason, and when, in converse with unreason, it produces results which are in all respects the opposite. Shall we postulate that this is so, or do we still suspect that it may possibly be otherwise?

**Clinias:** By no means (Lg. X 896E-897B).

In this way, with the motions and changes of soma, such as increase and decrease, separation and combination, many sensible qualities such as warmth and coldness, heaviness and lightness, hardness and softness, whiteness and blackness, heat and cold are shown concretely in this passage. From the above passages of book X of Laws, I understand that soma as an “object” has three common characters: spaciality, movability and sensibility.

If these characters are common to every soma, they would be found in various somata. For example, the celestial body which Plato considers as a living thing of the natural world is explained in book X of Laws as follows;

The sun’s body (soma) is seen by everyone, its soul by no one. And the same is true of the soul of any other body (soma), whether alive or dead, of living beings. There is, however, a strong suspicion that this class of object, which is wholly imperceptible to sense, has grown round all the senses of the body (soma), and is an object of reason alone. Therefore by reason and rational thought let us grasp this fact about it,—(Lg. X 898D-E).

In other words, the celestial body is sensible as far as it is soma. The relationship of physical education to the human body is described in the explanation of singing and dancing in book II of Laws, as follows;

**Athenian:** As regards the bodily (soma) actions which we called playful dancing, — if such action attains to bodily (soma) excellence, we may term the technical guidance of the body to this end “*techne* (expertise) of physical education” (*gymnastike*).

**Clinias:** Quite rightly (Lg. II 673A).

In other words, here, a dance as physical exercise is placed in the technical process of physical education to form bodily excellence. Furthermore, not only for the animal body, but also the body of whole living things, the necessity of exercise is pointed out in the another context (Lg. VII 789B-D). There is a close relationship between soma and exercise.

On the other hand, in the scene where the talent of judge of art is explained, it is stated that the completeness of the work as artifact (soma) should be judged from the viewpoint of space as follows;

**Athenian:** How, then, if in this class of objects a man were to be ignorant of the nature of each of the bodies (somata) represented could he ever know whether it is perfectly executed? What I mean is this: whether it preserves the proper dimensions and the positions of each of the bodily (soma) parts, and has caught their exact number and the proper order in which one is placed next another, and their colors and shapes as well,—or whether all these things are wrought in a confused manner. Do you suppose that anyone could possibly decide these points if he were totally ignorant as to what animal was being represented?

**Clinias:** How could he (Lg. II 668D-E) ?

In other words, number, form, placement, order, etc are essential in the constitution of a work of art. How these geometric properties are considered as a standard of aesthetic evaluation seems to have an important meaning for consideration of not only spaciality, but also sensibility. In this way, spaciality, movability and sensibility are the fundamental characters common to every soma, regardless of the distinction between a natural object and an artifact, or a living thing and a lifeless thing.

However, they seem to take on a different aspect from the fundamental characters of the body in the present age. At first I intend to examine the works written in the same period, as Laws, while referring to various theories about spaciality of

soma in the next chapter.

### 3 Spaciality of Soma

Plato expresses “space” by the Greek words kenon (emptiness), topos (position), hedora (seat), chora (place), etc, in *Timaeus*, which is also a later dialogue like *Laws*. However, kenon and topos do not appear to have a relation with the spaciality of soma directly, since Plato denies existence of kenon (emptiness) inside the cosmos<sup>10</sup> and generally considers topos as what is the ground where objects move over<sup>11</sup>.

On the other hand, Plato gives the inside of cosmos the blanks for the motion of object in acknowledgment of existence of diakenon (gap), however denies the existence of kenon (emptiness) inside the cosmos. The relationships between the full object express an aspect of Plato’s thought of space, and are concerned with movability and sensibility of soma examined in detail later.

According to Brochard, Plato “did not explain material with space but adversely explained space with material”<sup>12</sup>. Among the four Greek words mentioned above, chora (place) and hedora (seat) carry the role of such dynamic space.

For example, Plato says that chora is “like a nurse” (Ti. 49A, 52D), “receiving all somata” (Ti. 50B), “intangible” (Ti. 51A), or “apprehended by a kind of bastard reasoning that does not involve sense perception” (Ti. 52B) in the second part of *Timaeus*. Chora projects the always existing Form and is an acceptor which receives the becoming things as the likeness of Form (Ti. 49A).

It seems to be particularly important that chora “is laid down by nature as a molding-stuff for everything, being moved and marked by the entering figures, and because of them it appears different at different times” (Ti. 50C). In other words, Platonic space is not homogeneous space of Cartesian, but instead the place of plenum which is satisfied, moved and transformed by the properties of the contents<sup>13</sup>.

Furthermore, before the creation of cosmos, Chora has “some traces” of four elemental bodies (fire, water, air, earth) which are the smallest components of every soma (Ti. 53B), and Most of four elemental bodies occupy “the places proper”<sup>14</sup> to each. Chora is not existence independent of soma and not inorganic space.

However, chora is still insufficient for the spaciality of soma. Since chora is “in which the becoming object generates” (Ti. 50D), it is not the element constituting soma inherently. Rather, in the case of Plato, “figure (schema, morphe)”

that enters in chora as the likeness of Form takes such the role. In other words, each chora and likeness is compared to gold which is materials and the triangle and all the other figures which are produced in that (Ti. 50A-B). What makes chora space or solid is the geometric object which is projected in chora as the likeness of Form.

Furthermore, in *Timaeus*, various somata are explained from the geometric viewpoint<sup>15</sup>, and the geometric object becomes the medium linking ideal world to sensible world. For example, as in the passage of book X of *Laws* that I quoted earlier, “depth” is shown as a property of soma (Lg. X 896C-D), in *Timaeus*, it is said that the cosmos is “solid (stereon)” which had “depth (bathos)” (Ti. 32A-B) or that soma and “solid” are mentioned interchangeably (Ti. 55A). Since there is not an example of soma which does not have “depth” like the point, the line, and the plane in Plato’s works, it seems that figure and number are also called soma only when they become a three-dimensional “solid”.

On the other hand, in *Philebus*, a later dialogue like *Laws*, it is said that a certain product becomes out when the kind of “limited” (proportion among numbers or quantities) is mixed into the kind of “unlimited” always changing (Phlb. 25E), and bodily excellence (arete) such as beauty, strength and health are shown as the example of the kind of those “mixtures” (Phlb. 26B). The process of the production is also explained that “unlimited” leaves from chora (Phlb. 24C-D), by “limited” such as “fixed quantity (poson)” and “moderation (metorion)” coming into hedora (seat) where “unlimited” occupies. The “limited” in *Philebus* seems to be connected with the likeness in *Timaeus* through the theory of chora.

However, it is said that the kind of “limited” is the equality, the twice and what terminates a disagreement of oppositions, and it, using the numbers, measures them with a common unit or tunes them in *Philebus* (Phlb. 25D-E). *Philebus* is based on algebraic world view in comparison with geometric world view of *Timaeus*. Sayre considers *Philebus* which is the algebraic dialogue as a progressive type of *Timaeus* which is the geometric dialogue<sup>16</sup>. If we agree with his opinion, we may say that algebra is superior to geometry in Plato.

For example, in *Epinomis*, which is also a later dialogue, irrational numbers are connected with area (plane) and volume (solid), and transformed into comparable objects, and geometry is resolved into algebra (Epin. 990D-991B). Since number is considered to be more primary existence than Form in this dialogue, the algebra of *Epinomis* seems to be connected to “doc-

trine of numerical Form” that Aristotle recorded (Metaph. 987a9-988a17)<sup>17</sup>.

In this way, in *Timaeus*, *Philebus* and *Epinomis*, which are later dialogues like *Laws*, Plato consistently explains various phenomena of this world from the mathematical and geometric point of view<sup>18</sup>. According to Suzuki, “About object at least, the likeness of Form is produced by the figure and the relations among numbers and quantities (ratio in particular). In this natural world, the rationality or logicality of Form are reflected to the sensible world and become the spatial rationality or logicality that is geometric figures or relations among numbers”<sup>19</sup>.

The spaciality of soma is the likeness of Form, which is copied into chora (the place of plenum), and it is the solid, which is geometrically formed by following Form.

#### 4 Movability of Soma

In the book X of *Laws*, Plato tries to prove by the analysis of ten kinds of motion (① rotation, ② move ③ resolution, ④ composition, ⑤ increase, ⑥ decrease, ⑦ extinction, ⑧ generation, ⑨ motion by others, ⑩ self-motion) that Soul is prior to soma as refutation to the atheistic natural philosophy. He considers that each of ⑩ self-motion and ⑨ motion by others is the motion proper to each of Soul and soma in particular. In other words, in Plato, only Soul moves both self and others by self from the inside, and soma is only moved by others from the outside<sup>20</sup>.

Plato connects the motion of soma with the motion of Soul, as it said that “prime-working motions” of Soul leads “the secondary motions” of soma in the former citation (Lg. X 897A-B), and he explains another aspect of the motion of soma. In other words, self-motion of Soul gives motion by others of soma to a certain pseudo-autonomous motion by leading soma (Lg. X 895C-D), and it creates orderly phenomena in all things by the help of Reason (Lg. X 897C). Plato says that ① rotation is such the motion akin to Reason (Lg. X 897D-899B).

However, ② move (motions in many places) is the origin of the contact and the collision among somata, and is the motion akin to Ignorance. Since the motion akin to Ignorance “is never uniform or regular or in the same place or around or in relation to the same things, not moving in one spot nor in any order or system or rule” (Lg. X 898B), and this description implies the vortex of particles (four elements) which are components of every soma. The vortex is the reason why motion of soma is disorderly. The motions from ② to ⑧ are summarized

in ⑨ motion by others while starting from ② and forming a continuing of motion processes. In this way, in Plato, all the motions or changes among somata are raised by the contact and the collision of particles in the place of plenum. We should regard ⑨ motion by others as such the continuing of motion processes of particles.

On the other hand, in *Timaeus*, it is said that the motion of soma is “moved by others, and themselves, in turn, move others along necessity” (Ti. 46E), and motion by others is mentioned with necessity (ananke). Though the word of “necessity” has various uses from a logical meaning to “fate” and a name of God in Plato’s works, Proklus says “A goddess of ananke in *Res Publica* rules over gods …… ananke in *Timaeus* is power of soma”<sup>21</sup>

In addition, in seven kinds of motion shown in *Timaeus* (Ti. 34A), except for rotation, the six motions (to the front, the back, the left, the right, the up and the down) are motion by others or disorderly motion (Ti. 43B). Furthermore these motions have the possibility of vortex and stopping because they move into many directions and are intermittent (Ti. 58A-B)<sup>22</sup>. In other words, motions among somata are disorderly and dotted linear motion which is opposite to the orderly and circular motion such as the rotations of the heavenly bodies. “Necessity” in *Timaeus* expresses the aspect of such interdependent motion.

For example, Morrow considers necessity while connecting it with Reason or “chance (tyche)” as follows;

Necessity is represented by the causal sequences; chance, by the intersection or conjunction of these causal sequences. …… Plato’s reference to the world of necessity suggest this broader conception of chance as any collocation of caused effects, whether relevant to an end or not. The world of necessity is a world of regular causal sequences, a world in which determinate effects follow regularly from specific cause, but a world in which the joint results of these cause are unplanned. …… These joint results are the work of intelligence, and the production of these results is what constitutes the ‘ordering’ that Nous brings about. Thus to understand the actual word of becoming we need to know not merely the reasons for the effects produced in the several causal lines, but also the reason for the ‘convergence’—as we may call it—of these separate lines<sup>23</sup>.

Indeed, in *Timaeus*, “chance” is assigned to “encounter (suntunchanein)” or “collision (prospiptein)” of particles (Ti.

56D)<sup>24</sup> and as such, the encounter of “chance” is a moment of “necessity” that follows. However, as I already pointed out, such the motion by collision of particles is disorderly and has the possibility of vortex and stopping.

On the other hand, as it is said that rotation is the motion akin to Reason in book X of Laws (Lg. X 897D-899B), many circular motions which are produced by the order of Reason are shown in Timaeus. For example, “revolutions of the heavenly bodies and observation of them” (Ti. 47B-C), “harmony of music” (Ti. 47C-E), “breathing” (Ti. 79B), “physical exercise and its effect” (Ti. 88C-89A), etc, all of these orderly phenomena are produced by collaboration of rotation of Reason and dotted linear motion of necessity<sup>25</sup>.

The movability of soma is originally motion by others or disorderly and dotted linear motion, which is necessarily caused by the accidental collision between the particles, but in connection with Soul and Reason, it becomes pseudo-autonomous and orderly circular motion. Plato had a unique view of life to consider the cosmos and the heavenly bodies as living things, and the above mentioned principles of the motion are consistent from the cosmic body as macro-cosmos to the particle as micro-cosmos.

## 5 Sensibility of Soma

In the before referred to book, X of Laws, with the substantial changes of soma, such as increase and decrease, separation and combination, pathema (sensible qualities) such as warmth and coldness, heaviness and lightness, hardness and softness, whiteness and blackness, heat and cold are all shown as “the secondary motions” of soma concretely. On the other hand, in Timaeus, the pathema is explained based on the form and the motion of the four elemental bodies (fire, water, air, earth). For example, heat is the result that by the littleness, the thinness of ridge line and the speed of the motion, of tetrahedron that is the particle of the fire, it divided the thing to which it touches, and the sluggishness is based on the largeness, the stability of the bottom, and the slowness of the motion, of cube which is the particle of the earth (Ti. 56A-57A).

As it seems to already be comprehended, all the motions and changes among somata are raised by the contact and the collision of particles in the place of plenum, and pathema (affection) to occur with such the encounter of “chance” is the moment of “necessity” to follow that (Ti. 56D). In order that pathema can be raised by the interdependent motion among particles, the maintenance of imbalance based on inequality

between particles is needed (Ti. 57E-58C). The inequality occurs originally because the sizes of elemental triangles composed of each solid are infinitely various (Ti. 57C-D). In this case, pathema means the qualitative change which soma suffers by soma without the relation with activity of soul. The origin of pathema is ultimately the diversity and the multiplicity in the geometrical structures of the particles.

As a side note, what kind of influence will such pathema give to not only the human body, but also the soul when it occurs in the human body? For example, in the scene of Timaeus where gods tie human soul to the body and movement of a baby is told, pathema causes heteronomous and disorderly motion of the human body (Ti. 43B-44A). When the motion of pathema (affection) reaches the soul, Plato calls the series of motion “aisthesis (sense-perception)”, and considers that it confuses the rotation of soul. In another context, it is said that health of human body is attacked by pathema which occurs inside or outside the human body (Ti. 76E-A, 88D), and the disease of soul is produced by such the physical conditions (Ti. 44C, 86B-87A). In other words, when pathema occurs in the range of soma it brings the human body various evils, and when the influence reaches the soul it becomes aisthesis and brings many evils into the soul.

However, in Timaeus, Plato consider that the sight and the hearing of human beings were given by gods to receive the orderly circular motion in orbit of celestial bodies and the harmony of music, and to correct the confused rotation of the soul (Ti. 47B-47E). Besides, in Timaeus, he says that “exercise by physical education (gymnasia)” produces the motion akin to the cosmos and the thought in the human body forced to heteronomous and disorderly motion by pathema (Ti. 88C-89A), or in the theory of education in the book II of Laws, that “singing dance (choreia)” brings up aisthesis concerned with the order of sound and exercise (Lg. II 664E-665A). In other words, pathema and aisthesis confuse the human body and soul, but in the control of the orderly circular motion they contribute to the realization of the good and the restoration of the order in the human body and soul.

Furthermore, in the last book of Laws, regarding the maintenance of polity and laws, it is asked how security of living things are kept, and the relation between Reason and aisthesis is told as follows;

**Athenian:** By the existence of reason in the soul, in addition to all its other qualities, and by the existence of sight and hearing, in addition to all else, in the head; thus, to summarize

the matter, it is the combination of reason with the finest senses, and their union in one, that would most justly be termed the salvation of each animal.

**Clinias:** That is certainly probable (Lg. XII 961D).

After this sentence, the *techne* (expertise) of navigation, general in command and medicine are shown as samples of Reason, and each of them is put together with *aisthesis* for the security of ship, army and human body.

On the other hand, in *Philebus*, “absolute beautiful things” accompanied with pure pleasure are introduced as a classification of pleasure, and it is said that “the beauty of these is not relative, like that of other things, but they are always absolutely beautiful by nature and have peculiar pleasures in no way subject to comparison with the pleasures of scratching” (Phlb. 51C-D). For example, these pure pleasures are the pleasures of music sounds, perfume and geometric object (figures, straight line, circle, plane and solid) and so on. Plato finally allows to mix the pure pleasure with Reason and judgment or to mix the pleasure accompanied by health and temperance and all excellence with them (Phlb. 63C-63A).

Above all, the formerly referred to sentences in the book II of *Laws* or *Timaeus* show that these geometric properties are considered as a standard of aesthetic evaluation (Lg. II 668D-E), or that *pathema* is explained in the connection with the geometrical structures of particles (Ti. 56A-57A). We will understand the connection between algebraic or geometric object and *aisthesis* in *Philebus*, *Timaeus* and *Laws*.

Brisson considers that for Plato in the *Timaeus*, sense-perception (*aisthesis*) is really a measuring operation as indicated by the frequent use of the word *summetria*, which means proportion, that is ultimately the capacity for a thing to be compared to something else; namely by way of measuring. The action of the particles is qualified by the speed, the structure and the number of both sorts of particles<sup>26</sup>. According to Brisson, though the mortal parts of soul, which are established in the region of the heart (the spirited element) and of the liver (the appetitive part), are able to percept *pathemata* but unable to think about them or to give them a name<sup>27</sup>, the rational part of the soul is the only part capable of naming, which it does by establishing a link between a signal transmitted to it by the body and a name which is, in the first instance, the name of a Form<sup>28</sup>. The explanation of Plato’s natural philosophy about the generation process of sense-perception is summarized by Brisson as follows;

Particles coming from outside hit a part of a human body.

If this collision gives rise to a *pathema* or a *pathos* depending on the structure, the number and the speed of the colliding particles, the movement then initiated is transmitted by the blood through the body as a whole to the mortal parts of the soul first, and after to the rational part called *phromimon*. There, it triggers the process called *anamnesis*, which is the remembrance of a Form already seen when the soul was separate from the body, a remembrance which allows the activities of thinking and naming to take place. Sensation means the process as a whole, and that is why, in the case of plants, sensation is said to remain non-rational (*alogos*), remaining as such an incomplete process<sup>29</sup>.

Indeed, in *Phaedo* and *Phaedrus* as well, *aisthesis* is a moment of the remembrance of Form<sup>30</sup>. *Pathema* and *aisthesis* seem to have the significance of existence by the remembrance of Form, the intelligible or linguistic activity, and the algebraic or geometric object.

The sensibility of *soma* is *pathema* (accidental affection), which is based on the multiplicity in the geometrical structures of particles. *Pathema* injures Soul and *soma* when it is left to Chance and Ignorance, but in the control of Reason it contributes to the realization of the good and the restoration of the order.

## 6 Conclusion

As results of the considerations in this paper, it has been made clear that *soma* has three common characters: spaciality, movability and sensibility, which take on a different aspect from the body in the present age. Firstly, the spaciality of *soma* is the likeness of Form, which is copied into *chora* (the place of plenum), and it is the solid, which is geometrically formed by following Form. Secondly, the movability of *soma* is originally motion by others, or disorderly and dotted linear motion, which is necessarily caused by the accidental collision between the particles, but in connection with Soul and Reason it becomes pseudo-autonomous and orderly circular motion. Thirdly, the sensibility of *soma* is *pathema* (accidental affection), which is based on the multiplicity in the geometrical structures of the particles. *Pathema* injures Soul and *soma* when it is left to Chance and Ignorance, but in the control of Reason it contributes to the realization of the good and the restoration of the order.

Since *soma*, which has close connections to Soul, Reason and Form, is represented as such a subordinate and necessarily conditional existence in Plato’s later dialogues, the human body,

which is also called soma, should be considered on the basis of the above mentioned fundamental characters. Consequently, in Plato, human body is not always negative for Soul and Reason, but a pseudo-autonomous and orderly thing, as far as it is made by the *techne* (expertise) of physical education which is of intelligible ability. The grounds by which physical education is related to the human body are as follows.

The first is that the human body must be given spatial rationality or logicality (e.g. Greek sculpture). The second is that heteronomous and disorderly motions of the human body must be changed to pseudo-autonomous and orderly ones (e.g. healthy body). The third is that humans must bring up the sensibility concerned with the order of sound and exercise through the motions of the body (e.g. singing dance). These points seem to give a chance for the reanalysis of Plato's physical education theory from the view of not only soul but also body. They can also relativize the modern view of physical education, which became axiomatic and affected by mechanism or materialism through sports scientific technique, and restore the humanity and totality of physical education, despite the fact that, unlike ancient time, we receive various benefits of sports scientific technique in the present age.

### Note:

- 1 Cra. 400C, Grg. 493A, Phdr. 250C (Phd. 62B).
- 2 Zeller (1889), *Die Philosophie der Griechen in ihrer geschichtlichen Entwicklung*. II.
- 3 Vlastos (1939), *The disorderly motion in the Timaeus*.
- 4 Brochard (1900), *Le devenir dans la philosophie de Platon*.
- 5 Cherniss (1954), *The sources of evil according to Plato*.
- 6 Johansen (2000), *Body, soul, and Tripartition in Plato's Timaeus*. Joubaud (1991), *Le corps humain dans la philosophie Platonicienne: Étude à partir du Timée*.
- 7 Kiniwa (2001), *An Introduction to the Study of the Human Body in Plato's Philosophy: A Methodological Approach to Philosophy of Physical Education*. In this paper, I have contemplated the relationships between three principles in Plato's Philosophy (Soul, Reason and Form) and the body (soma): master to servant, means to an end, and paradigm and likeness which are represented as the relationships between self-motion and motion by others, Cause and Accessory Cause, and One and Many. Since the body has close connections to the above principles, Plato's study of the human body must be explained in connection with or by his study of Soul and Form. The human body can also be defined by internal relationships.
- 8 Tanaka (1981), *Plato II Philosophy* (1). pp. 8-11.
- 9 All quotations have been taken from the Loeb Classical Library, however all technical terms about physical education and soma have been interpreted from the author's translation. In regards to *Timaeus*, Plato's English translation by Zeyl was used.
- 10 Ti. 58A, 59A, 79B-C, 80C.
- 11 Ti. 52A, 57C, 58B, 60C, 63C, 63D, 72B, 87A.
- 12 Brochard (1900), p.107. The term of "la matière" which Brochard says is called "die platonische Materie" or "Platonic matter" in Plato's study. See Zeller (1889), S.721, S.723, and Cherniss (1954), p.255. However, it is not same as soma but ultimately means *chora* to be the material of soma.
- 13 See Sallis (1995), *Timaeus' discourse on the chôra*. p.165, and Rosen (1995), *Commentary on Sallis*. p.175.
- 14 Ti. 53A, 57C, 58B, 63B, 82A, 83A.
- 15 According to *Timaeus*, the cosmic body (Ti. 33B) and the celestial body (Ti. 40A) and the human head (Ti. 33B) are "global", and the human body is "lengthwise" (Ti. 44E), and the human brain is "round form" (Ti. 73C-D). Furthermore, the human marrow is "cylindrical" (Ti. 73D). About the four elemental bodies, the earth is assigned to cube, the water to icosahedron, the air to octahedron, and the fire to tetrahedron (Ti. 55D-56B).
- 16 See Sayre (1998), *The role of the Timaeus in the development of Plato's late ontology*: 103-113 and Fujisawa (1980), *Idea and World*. pp. 197-201.
- 17 See Jackson (1882), *Plato's later theory of Ideas*: 253-298.
- 18 Though the topics of *Timaeus* and *Philebus* are quite different, according to Sayre and Fujisawa, these dialogues are on common ground about ontology (See n.16). Tanaka also points out the same thing in Law (See Tanaka (1981), *Plato II Philosophy* (1). pp. 67-85). On the other hand, *Epinomis* is generally considered to be spurious and we cannot directly regard it as evidence for the study of Plato. However, it was written by Philip of Opus who was a member of Plato's academy (D. L. III 37) and greatly affected by Plato's later theory. Moreover, in the scholarly community, there are some interpreters who consider *Epinomis* as Plato's original work, by using Cicero's statement in the evidence (de Orat. III 6. 21). In this paper I used it as secondary and supplementary material.
- 19 Suzuki (1982), *Examination of Greek Thought*. p. 257 (in English).
- 20 Chrm. 156E, Phdr. 245C-246A, Ti. 34B-35A.
- 21 Proclus: *Festugière, A. J. (traduction et notes)* (1967),



Commentaire sur le Timée III. pp. 156-157 (in English).

22 Phdr. 245C-246A.

23 Morrow (1950), Necessity and persuasion in Plato's Timaeus. pp. 432-433.

24 Vlastos (1939), p. 394 (Ti. 33A, 43B, 43C, 87A) .

25 Skemp (1942), The theory of motion in Plato's later dialogues. p.86.

26 Brisson (1997), Plato's theory of sense perception in the Timaeus: How it works and what it means. pp. 155-156.

27 For example, Plato says that the appetitive part of soul never participates in opinion and calculation and Reason (Ti. 77B).

28 Brisson (1997), pp. 159-163.

29 Brisson (1997), pp. 162-163.

30 Phd. 73C-E, 75A-B, 75E-76A, 76E, Phdr. 249B-C.

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