

Consciousness In Environmental Philosophy

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Abstract—Nature provides the environmental networks that support the characterizing diversity and survival of species. In the environmental philosophy proposed in our previous paper, we clarified the right of living beings to exist, and detailed environmental morals to protect it. The ultimate goal of environmental conservation activities is to protect the right of all living things to exist. In other words, it is nothing less than protecting the environment in which they live and coexisting with them. The principle of symbiosis: mutualism is to respect for life, but how to deal with natural disasters, environmental pollution, and other situations that go against this principle depends on realizing our ideal of observing environmental ethics. It takes effort to sustainably have a symbiotic consciousness, an environmental consciousness as we define it. For that purpose, scientific understanding by intellect alone is not enough, and sensibility consent by emotion to seek symbiosis is necessary. Coexistence between the self and others is achieved through the consciousness that the existence of others is self-fulfilling. This paper describes the process of generating continuous environmental consciousness using an environmental model.

Note. Awareness and consciousness in this paper have the same meaning, but awareness is a word that is induced by external stimuli, and consciousness is a word that is induced in the mind. We use “awareness” instead of “realization”, and as an idiom, “self-awareness” but usually otherwise use “consciousness” to avoid confusion.

Keywords—affinity, autoregressive, consciousness, Dictyostelium discoideum, environmental morals, free will, introspection, natural wisdom, Physarum polycepharum, symbiosis

I. INTRODUCTION

The purpose of this paper is to investigate what kind of consciousness is necessary for continuous environmental protection activities. Today, global warming caused by environmental pollution such as carbon dioxide gas, damage to crops by wild animals, and an increase in extinct and endangered species due to illegal dumping and war are being caused. Not only does it interfere with the atmosphere, soil, ocean, and life activities of various living things, but there is

also concern about the extinction of humankind. In order to sustain environmental conservation activities and motivate them to engage in activities, intellectual ability to grasp the current situation scientifically, and subjective and sensibility consent are necessary. In short, environmental protection activities are supported by intelligence and sensibility. Sensitivity in this case is a personal, subjective experience, but sensibility is related to the question of consciousness. Consciousness is defined as everything personally experienced. This definition confuses mind and consciousness. The mind is the sum total of intellect, emotion and will, but it can be personally experienced. The mind is a large concept that encompasses the concept of consciousness [2]. With this definition, it is not clear which part of the mind is conscious. In fact, perhaps because it is used conveniently in famous papers, the confusion between consciousness and mind can be seen everywhere. This paper discusses consciousness separately from the mind. What is consciousness? Is consciousness a secretion of the brain? Can it be reduced to the function of nerve cells? If the brain creates consciousness, which part of the brain is it? It is necessary to examine various theories about the definition of consciousness and the mechanism of consciousness. Conventionally, researches on sleep, disturbance of consciousness, and brain death, which are special states of consciousness, have been carried out in order to investigate the actual state of consciousness. Recently, however, the state of consciousness during meditation has been investigated using physiological data. Since consciousness is an individual experience, its definition has changed from subjective self-actualization (K. Jaspers) to something that arises in the process of phylogenetic evolution and adapts to the environment. Various models such as philosophical models, psychopathological models, and physiological models have been proposed as structural models of consciousness. Nishida's philosophical model uses Zen thought to arrive at self-actualization brought about by consciousness. Freud's psychopathological model is effective in treating hysteria by postulating the existence of the unconscious. L. S. Kubie also uses Freud's model to explore the creative distortions caused by mental illness. The physiological model refers to the state of consciousness during meditation from physiological variables such as brain waves and blood pressure during meditation. In the definition of environmental philosophy, consciousness demands an environment in which one's self and others can survive by exercising free will [1-2] toward a mutualistic

(symbiotic) natural environment. In order to have an autonomous and sustainable symbiotic consciousness, we need not only a scientific understanding, but also the practical ability of acting for self-realization. The purpose of our survival is self-exploration through natural systems and the forces behind them [1]. Self-actualization requires consciousness, of which knows the self through the other within the self and the self within the other, which knows the self through the existence of others who project the self. Specifically, it explores what the self is by knowing how we as individuals think of others and how others think of us as individuals. In short, when we engage in activities to protect the natural environment, we do not always see nature as it should be. We must decide our actions by considering the various reactions of nature. So-called others play the role of a feedback system for knowing oneself. Cognition is required that others are necessary to know oneself. In meditation, no conscious effort is required to become aware of coexistence. Especially in Zen as a meditation method, symbiotic consciousness arises when contemplating nothingness and surrendering oneself to the mechanisms of nature. The mechanisms of mind and body for the survival of living things and the natural environment that supports them are due to the mechanisms of nature. In short, environmental protection is nothing less than the practice of environmental morality coupled with free will underpinned by a sense of symbiosis. In the natural world, in addition to the unique characteristics of each species, there is an environmental network that provides materials and information necessary for survival, such as interdependence and sociality. *Dictyostelium discoideum* is already social in its biological lineage. However, diversity and networks are fragile and prone to collapse due to food chains, survival of the fittest, disasters, and destruction of nature. In this way, the natural world has some disadvantages to survival, but at the same time, nature gives us ideals, puts them into practice, and gives us the will to correct our disadvantages. Already in the 16th century, Machiavelle suggested the existence of free will, unfettered by fate [3]. This paper introduces the general view and Locke and Freud definitions of consciousness, as well as an objective definition [5], and examines materialistic and neurophysiological views as the origin of consciousness. We propose an environmental model based on our environmental philosophy, and clarify the roadmap leading up to that consciousness. In addition, we will consider the origin and current state of science and explore the path to a symbiotic consciousness that supplements the intellectual understanding of objective science required for national policies and social activities. In other words, we will consider the relationship between science and curiosity and intuition that drive science, how chance and unexpected events represent the limits of science, and the gap between science and environmental consciousness.

II. CONSCIOUSNESS

1. What is consciousness?

1) General view [4]

Consciousness is an individual experience, but the generally accepted characteristics are:

(1) *The physical body in the physical world has consciousness.*

(2) *Consciousness enables an organism to perceive things, avoid pain, learn, plan, and solve problems.*

(3) *Consciousness has an inexplicable part.*

Consciousness phenomena are regarded as objectively accessible in scientific explanations, but there are unexplainable parts such as consciousness of oneness of self, out-of-body experience with mystique, and clairvoyance. See notes 1) and 2), at the end of this paper for the mystery of consciousness.

2) Locke

For J. Locke, consciousness is primarily self-awareness, which can be understood through introspection, but denies the concept of unconscious thought and perception. This cannot explain the continuous appearance of unconscious memories in consciousness.

3) Freud [5].

According to S. Freud, the consciousness layer consists of the conscious (current consciousness), the preconscious, and the unconscious, which is the bulk of the conscious. He postulated the existence of unconscious mental processes, but argued that there may be unconscious beliefs and desires, unconscious feelings of hate, and unconscious plans of self-defense and retaliation. The idea of 'conceptual impossibility' has made it possible to address trauma and explain its etiology in the study of psychopathologically incomprehensible cases, especially hysteria [5]. Freud believed that the subconscious influence on the present consciousness was due to the suppression of childhood sexual energy, but he was unable to generalize it. Kubie used Freud's definition of consciousness to reveal the impact of neurotic pathological processes on creative behavior.

4) Objective definition of consciousness [4]

(1) Husserl

Consciousness is the integration of experiences that are both one and can be simultaneously any each moment (A. E. Husserl) [6].

(2) John

According to E. R. John consciousness is a process in which information about multiple individual modalities of sensation and perception is combined into a unified multidimensional representation of the state of the system and its environment, and integrated with information about memories and the needs of the organism, generating emotional reactions and programs of behavior to adjust the organism to its environment [7].

(3) Cobb

A further simplification is the definition that consciousness is aware of itself and its environment (S.Cobb) .

(4) Definition according to environmental philosophy

The above definitions do not take into account the original purpose of an organism, i.e. how to live in a particular environment. Consciousness is concerned with the survival of all living things, not just humans, and survival centers on issues related to the environment. We embody consciousness based on our environmental philosophy. In other words, consciousness is defined as the integration of intellect and sensibility to 'notice' 'the natural environment and the way of oneself' in order to protect and nurture biodiversity and environmental networks. This is discussed further in 5 "Environmental protection and consciousness".

2. Origin of consciousness

1) Materialism

According to Armstrong's 1968 materialism, consciousness is a product of the brain and can be explained physically [8].

2) Demonstration from the perspective of brain physiology

(1) Eccles

J. Eccles believes that consciousness goes beyond the brain, citing that neurons can hold information about an individual, but neurons cannot hold information about their 'self' identity. Popper's philosophical considerations and Sperry's split-brain observations are similar in that consciousness cannot be reduced to neuron activity. Sperry advocates the generation of consciousness using complex systems theory and proposes a monism between consciousness and brain function, but Eccles and Popper consider consciousness and brain function to be a dualism of another dimension. According to Eccles, everyone is born with their own computer and spends a lifetime learning and experiencing to generate programs. The computer here suggests the existence of a soul [9]. Consciousness is irreducible to neural activity, so before we can connect consciousness with the soul, we must examine natural systems and what lies behind them. Just as the natural sciences test their hypotheses by observing nature. We need a modern interpretation to replace the soul. Our thoughts are not separate entities from the real world. Thought and the world are complementary to each other, just as body and mind are complementary. But Eccles' soul model is not new. Since ancient times, it has been believed that the soul is a living entity that continues to live after death. It is said that living organisms not only emit a certain kind of infrared-like light from their bodies and can be observed as waves, but the waves continue even after death. There is no strong evidence against this idea even today.

(2) Ey

H.Ey proposed a conceptual consciousness field for consciousness to realize experience. The cerebral

cortex constitutes the highest level of mental activity, but it is not the center of consciousness that shapes our experiences. However, sleep studies have confirmed that the brainstem reticular formation in the central brain is the basic organ of wakefulness [6].

(3) Sperry

R. Sperry, based on his observation of conscious experience in a split brain, applied the theory of complex systems to interpret conscious phenomena as dynamic emergent properties of brain activity, not nerves [10-11]. He embodies H. Ey's field of consciousness and develops the theory of emergence. In emergent theory, life is regarded as fluctuations in a non-equilibrium open system. The brain undergoes a phase transition from a highly flexible microscopic state to a discontinuous macroscopic state, emerges as a new spatio-temporal order of consciousness, and enters a new self-organization. The first problem is the explanation that consciousness cannot be reduced to the function of neurons in the brain. Further grounds are necessary to give necessity to the generation of consciousness by. In the natural world, there are structures and functions that make things things, and life that manages and operates them. Also, no experimental verification has been done to confirm how the consciousness was before emergence. Second, it is premature to attribute consciousness to the brain. This is because consciousness and free will are recognized even in organisms that do not have a brain. This is because, for living things, consciousness makes them recognize things and take necessary measures for survival. Third, since consciousness is in an unknown stage, this model does not make a clear distinction between the parts that remain unknown and the parts that become known.

3. Aspects of Consciousness

Consciousness is hierarchical. Each has detailed physiological characteristics [12-15]. That is, in wakefulness and sleep (4th stage of deep sleep, Non-REM, and 1st stage of sleep, REM), we compare physiological quantities that correlate with meditation. EEC, EOG, EMG, exercise capacity, body temperature, cardiac output, blood gases, heart rate/m, respiratory rate/m. Skin resistance, blood lactate levels, awareness, and deprivation were investigated. REM sleep exhibits paradoxical sleep with greater arousal than non-REM sleep. Various physiological data indicate a state of relaxation during meditation, while EEG shows a pronounced appearance of alpha in the frontal and central regions of the head. Furthermore, EEG entrainment around 8 Hz has been observed between F₄C₄ (homolateral lights) [16]. The auditory brainstem response, ABR, is used for local diagnosis of brainstem degeneration and determination of level of consciousness. According to our research, during meditation, the latency of the V-wave originating in the inferior colliculus of the ABR waveform increases up to 50 dB HL of stimulus sound pressure and tends to decrease above 50 dB HL [17].

4. Models of Consciousness

Consider the model of consciousness from the standpoint of meditation and neurosis.

1) Physiological model [12-15]

According to Wallace's model of meditation, meditation affects the hypothalamus and reticular activation system [13]. Effects on the hypothalamus stimulate the autonomic and somatic nervous systems, decrease epinephrine release via the adrenal medulla, lower arterial blood lactate concentration, reduce symptoms of instability, and restimulate the hypothalamus. The thalamus, together with the reticular activation system, contributes to the singularity generation of electroencephalograms. On the other hand, stimulation of the reticular activating system stimulates the medulla oblongata, causing decreases in oxygen consumption, cardiac output, heart rate, respiration rate, blood pressure, etc., increases skin resistance, and causes changes in cell metabolism. In addition, stimulation of the medulla oblongata, stimulates the autonomic nervous system and the somatic nervous system, resulting in a change in cell metabolism and a decrease in excess bases.

2) Neurotic model [18]

Based on neurotic research, Kubie classified consciousness into present consciousness (CS), preconsciousness (PCS), and unconsciousness (UCS), and argued that pathological processes influence creative behavior. Consciousness, preconsciousness, and unconsciousness form a spectrum and influence each other. Creativity becomes a pathological behavior when the influence of the unconscious is strong. Conversely, when the influence of the unconscious is diminished and the present consciousness strengthened, creativity loses free thinking and language and logic become strongly fixed. Creativity is demonstrated when the preconsciousness becomes stronger than the present consciousness and unconsciousness.

3) Model by Nishida Philosophy

Kitaro Nishida, starting from "Research on the Good", develops his theory by dividing consciousness into individual unconsciousness and universal unconsciousness with the ego as the apex [19]. The universal unconscious is influenced by D.T. Suzuki's Zen philosophy [20]. As Suzuki explained, nirvana, the highest state of consciousness achievable by Zen, is a state of freedom in which consciousness is free from preconceptions and distinction self and others.

4) Model based on environmental philosophy

Figure 1 shows the layers of consciousness. Self (left) and others (right) can reach universal consciousness (UNI CS) through contemplation of nothingness. This is consciousness that does not discriminate between self and others. It is a state of consciousness in which one treats nature and the natural environment as one's own. This leads to consciousness of symbiosis. Natural systems represent biodiversity in the natural world and at the same time control the functions of organisms to enhance their survival. A human sense of purpose and ability to execute are

indispensable for human manufacturing such as planning, design, development, prototyping, and operation. Like man-made objects, in the natural world, natural creations are related to each other and form a network, maintaining symmetry and order. This consciousness is called the universal consciousness of nature. Access to this consciousness (UNI CS) becomes possible by releasing consciousness from sensory input overload and logical restraint through present consciousness (CS), and it becomes a free will action [12]. As shown in Figure 1, cosmic consciousness fuses and reintegrates self and other consciousness. Furthermore, at each level of consciousness according to the definition of nature (see reference [2] for a definition of nature), present consciousness (CS) belongs to external nature, and preconsciousness (PCS) belongs to external nature and internal nature. The inner nature is the origin of the mind. In the unconscious (UCS), we perceive nature implicitly and fragmentarily through experience, but without the censorship of present consciousness and preconsciousness, we cannot understand nature itself. Universal consciousness belongs to the deep nature, the root of ideals (realization of justice, liberty, fraternity).

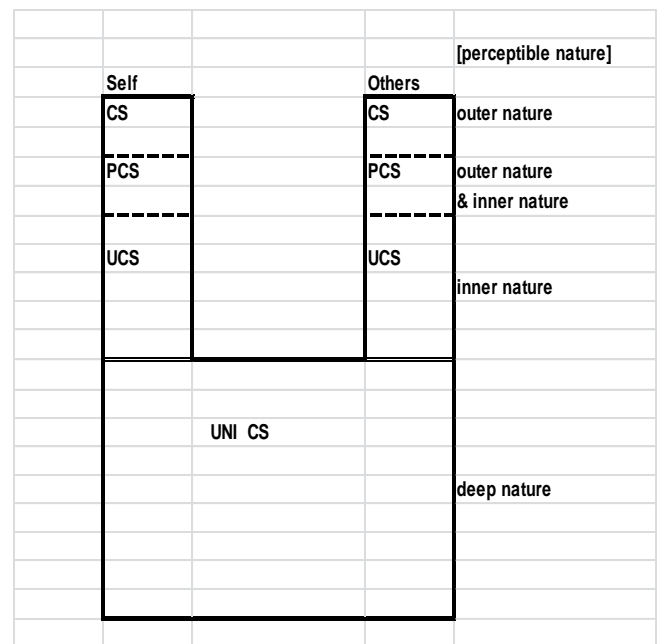


Fig. 1 Conscious layer

The diagram represents the depth (layers) of consciousness. Present consciousness (CS) is influenced by preconsciousness (PCS) and unconsciousness (UCS) to induce behavioral changes. Consciousness, preconsciousness, and unconsciousness form a spectrum, as indicated by the dashed line, and influence each other to change behavior. Universal consciousness (UNI CS) is the consciousness when we feel a sense of unity with nature. When the current consciousness accesses the universal consciousness, the symbiotic consciousness arises in the current consciousness and becomes an action of free will. Under this consciousness there is no distinction between self and other. Details are given in the text.

5. Environmental Protection and Consciousness

1) Understanding of nature

Since ancient times, human beings have believed that there is wisdom in the natural world. There are natural

religions and natural philosophies that actively acknowledge this, and they have had a great influence on modern thought. In the natural sciences, research is limited to physical phenomena that are easy to understand, but there is a negative perception of nature's wisdom. Nature is never an active entity that reveals itself. Only through our actions can the mysteries of nature be revealed. However, the recent view of nature is different. According to Sperry [21], "people feel respect and envy when they recognize the role of nature in the process leading to the birth of mankind. As a result, matters such as the rights of species to value ecological quality, balance, and progressive differentiation, and the protection of natural resources are reinforced for the first time with a high degree of dedication and commitment beyond human convenience". It is assumed that there is a meaning of environmental conservation here. Wisdom is an anthropomorphic expression, but it is conceivable that the existence of abilities that surpass human knowledge exists in order to move and control the systems that create everything from the matter of the heavens and earth to life. Our bodies have biological functions for self-preservation such as proliferation, growth, nourishment, respiration, excretion, response, regulation, and movement. Humans have a nervous system ranging from the central nervous system to the peripheral nervous system. Human beings aim for self-actualization under the mind that governs intellect, emotion, and will, and at the same time aim to utilize language and build social structures in order to build closer relationships with others. Tracing the lineage of organisms, communication and social construction as alternatives to language are widely recognized in various species. Consideration of nature regarding the survival of living organisms provides various guarantees of survival, including respect for the rights of biodiversity and the construction of environmental networks. Just as the oxygen production of plants through photosynthesis benefits aerobic organisms, the actions that individual organisms take for their own survival can ultimately benefit the survival of other organisms. This is an example of how the equilibrium, a characteristic of nature, contributes to the survival of other species. Thanks to advances in natural science, the mechanisms of nature have been clarified objectively, but the mechanisms that nature gives to all things are far beyond human comprehension. Natural phenomena include natural disasters, adaptation of the strong, food chains, etc., so nature cannot be accepted as it is. Our ideal is coexistence beyond self and others. There are many twists and turns in the realization of symbiosis, but even if the existence of other species threatens each other's existence, it is necessary to continue to strive to ensure each other's survival with intelligence, experience and every effort. This is because the realization of our ideal symbiosis means the realization of the self.

(1) *Verification from facts in nature*

See if we can substitute man-made objects for the facts that nature brings us.

① *In the natural world, there are structures and functions that make things things, and life that manages and operates them.*

② *There is a mind, that is, a mind that can be more self-controlled in life activities. Life is carried out by the combined action of the mind and body.*

③ *From an informatics point of view, this mechanism resembles an evolving program.*

i. It can be said that it is a dynamic program (DP) because it is possible to respond flexibly to changes in the situation.

ii. In order to have a mental effect, this DP is further developed, and it becomes an AI design with free will to act on its own will.

However, it is not easy to give AI the characteristics of coexistence with others, such as building an environmental network as a life activity. This is because the mechanism by which support for others becomes support for oneself is not clear. In short, the design of life by the power of natural science is extremely difficult.

iii. From the above point of view, considering nature as a designer, there is great wisdom hidden in it.

iv. There is a tendency to see nature's unknown mechanisms as contingent actions or extensions of matter.

Some scientists say that there is "contingency"

Involved in things rather than nature's wisdom. However, "contingency" is difficult to analyze. Because he could not agree with the wisdom of nature, he only brought up the word "contingency." Others argue that matter itself has a constitutive force, and that life exists as an extension of it. In order for matter to carry out life activities, it is necessary to evolve the system composed of matter and further increase its efficiency and stability. In other words, in order to give autonomy to matter, it is necessary to consider the existence of consciousness that promotes life activities.

④ *Nature is self-regression: Objective self-awareness of nature*

Nature's autoregression is defined as reaching self-awareness through creatures created by nature [1]. This is a feedback system in natural science, but the autoregression of the natural world spreads to all things, living things follow the evolutionary path, inanimate things repeat changes, and the self-awareness of the natural world deepens. However, organisms that exist in nature are in the process of evolution and are characterized by localized and limited cognition

This can be summarized as follows.

i. Nature comes to self-awareness by observing itself through its creatures.

ii. Human intelligence has limits.

Humans, who have evolved among living creatures, sometimes use the wisdom read from nature out of curiosity for environmental design, etc., but as long as they prioritize their own interests, their intellectual

horizons are narrow and limited. Even if the development of nuclear power led to the atomic bomb, scientists are not responsible for the consequences.

iii. Humans make big mistakes such as creating nuclear weapons because of their inadequate insight.

2) *Observation of the natural world*

Consciousness to protect nature means to "notice" the reality of the natural world. It is to think about what to do by noticing and act by free will. Dialogue with nature's wisdom is nothing but cooperation with natural systems. Our challenge is how to utilize this excellent ability of nature for the protection and utilization of the natural environment.

(1) *Intellectual understanding : Scientific knowledge*

In a polluted natural environment, living organisms lose their right to live, and their survival itself is threatened. Observing this fact, various policies and environmental protection activities are being carried out in an attempt to avoid the seriousness of the situation, but continuous efforts are required to make these activities sustainable. Intellectual understanding alone is not enough for sustained action. It requires an emotional consent that connects the natural environment with self-fulfillment.

(2) *Cognition through sensory experience: raising consciousness through personal experience and autonomy*

Autonomy depends on curiosity, so how to raise this curiosity is important. Curiosity sometimes leads to irresponsible destruction of nature, but by feeling close to the natural world and connecting with affection (deep impression) and sympathy: primitive passive sympathy, we can become one with the workings of nature and nurture symbiosis. Take responsibility for the state of the environment. Sensory experiences are subjective experiences and are not necessarily objective or logical. Motivation for sensory experiences is based on affection and sympathy, thus providing a sense of spiritual fulfillment.

(3) *Self-observation*

Self-awareness is to know the relationship between nature and the self, and to know the meaning of self-existence questioned by the other within the self, that is, to know the other within the self. For environmental protection, by working on others as the environment, it is possible to make others look back on their own actions. In this sense, the environment can be said to be the self within the other. It is to experience that the entity of nature becomes one with oneself. Experience is to make a choice of action by reaching universal consciousness while holding Present Consciousness (CS) shown in Figure 1. Specifically, we become sensually conscious of the symbiosis of natural objects and of the natural mechanisms behind them. Specifically, we will develop a sensory consciousness of the symbiosis between natural objects and the natural mechanisms behind them.

① *Introspection*

From external observation, we reexamine our way of being through the self within others. Introspection

always requires self-conscious control in order to reconsider the self. But there is also self-observation without conscious control, which is no different from meditation.

② *Meditation*

The purpose of meditation is simply to be mindless without any special consciousness or control of consciousness, to be free from our own thoughts. It is to notice the mechanism of nature that manages one's mind and body that is not in one's consciousness. It is a state of compassion [20] that transcends the consciousness of oneself and others from the consciousness of individuals caught in prejudice. It is to return to the universal consciousness defined in this paper. As is well known, during meditation, self-awareness rises and reaches a level of awakening, reaching a consciousness that all other beings are self-existing (Reference: Dogen Zenji in the 13th century, "Identity with all things in the mind" [22]). Figure 2 shows a flow chart of consciousness of environmental protection activities. The ultimate goal of environmental protection is coexistence with all things in the natural world. Persistence and autonomy of action require that activists have emotional understanding and reach universal consciousness. Meditation is said to be effective in reaching universal consciousness, but it is not always possible for everyone. Because it takes some practice. This consciousness is the state of nirvana advocated by D.T. Suzuki, a state of unity with all things, of unbound by things, and of peace of mind. In environmental philosophy, oneness with all things means "symbiosis" with all things. Out-of-body experience also leads to a sense of oneness with all of things, the universe, but there is a sense of being away from the body, which is not an absolute sense of security as it leads to anxiety (Note 1). Observing the natural world has the same effect as meditation, and we can gain affection, sympathy (1), and familiarity (2), and create a sense of unity with others. However, because they rely on external stimuli, they need to renew their consciousness in order to continue to be stimulated.

3) *Free will*

Environmental factors such as biodiversity and environmental networks have fragile aspects and are destroyed by rapid increase of species, survival of the fittest, disasters, and natural destruction. Networks are sometimes preserved, as seen in the social nature of insects, but endangered species are increasing as nature is destroyed. Nature has some disadvantages to survival, but nature gives us the heart and will to correct these disadvantages. Machiavelli once said, "We can change some of our destinies with our free will"[2]. This is a political idea, but it can be understood as a modern environmental policy. According to Sperry, human decision-making is self-determining rather than non-deterministic. But we are not free from our inner self. The determinants that control behavior are dependent on environmental factors in animals, but on internal self-factors in humans [21]. Free will is said to be a control system that characterizes brain function, and behaviors

similar to free will have been observed even in organisms without a brain [23]. In the slime mold *Physarum polycephalum*, branching that breaks the symmetry of foraging occurs when the feeding ground is determined. It is reported that the symmetry that restores this bifurcation occurs immediately following collective decision making. Free will is deterministic and non-deterministic, and there are discussions that include both, but artificial and arbitrary environmental destruction such as global warming, deforestation, and war continues. This is not deterministic. It is a blasphemy against nature and a lack of understanding of environmental morality.

4) *Consciousness to maintain environmental conservation activities: the role of environmental consciousness*

(1) *Consciousness necessary for observation*

① *Awareness*

i. *Observation purpose*

Awareness is the consciousness of discovering changes in things through observation. Awareness is necessary to notice changes in things through observation. By bringing what we notice into the real world, we can be sure of its existence. In other words, it can be recognized as the meaning of life or as a thing in the real world. Otherwise, we will remain in a fantasy, imaginary world of self-satisfaction and lose the meaning of the existence of the real world.

ii. *Natural systems and conscientization*

Considering the effects of environmental pollution, there are things that we should be aware of, but there are also things that we care little about if healthy. If healthy, we will not be aware of our condition until the disease is advanced. We are unaware of changes in our physical condition, so we do nothing and let nature's health management system take care of it. Although there is a limit to the accuracy of health checkup equipment, it is necessary to undergo a health checkup in order to know the state of health. Conscientization of things requires awakened self-awareness and scientific judgment to support it.

iii. *Symbiosis*

In this paper, symbiosis means "mutualism", not "commensalism" or "parasitism". In the natural environment, in order to protect and nurture environmental factors such as biodiversity and environmental networks, it is necessary to nurture and further construct symbiotic systems linked to natural systems. There are various ways of coexistence, but the ideal is a system that does not discriminate between self and others, contributes to the survival of each other, and supports each other. It may be based on intellectual judgment of scientific knowledge based on observation, or it may be based on emotional consent based on reflection. In order to continue a permanent activity, it is desirable that it be a holistic activity that makes intellectual judgments based on sensibility. In any case, coexistence methods need to be constantly updated and revised. *Dictyostelium discoideum* has been reported to practice "non-monoculture agriculture" by transferring the bacterium to new environments [24]. Strictly speaking, even in

an environment where bacteria can grow, they cannot be said to be "mutual coexistence" because they are preyed on by slime molds. But this example is the origin of human pastoralism. We would like to pay attention to a good example of further evolved "mutualism".

② *Awareness Request*

i. *Discard preconceptions through self-observation.*

Meditation to contemplate nothingness is known to discover oneself, free from preconceived notions and able to become aware of what is happening around oneself, through the automatism of awakened consciousness.

ii. *Learning from failures and disappointments*

Our intellect may have errors and limitations in its methods and ways of thinking to achieve desired results. Success comes from rethinking failure and unintended consequences. This is because there are difficulties in how to formulate problems and how to reach results.

iii. *Use of contingency*

A contingency is a variety of possibilities that enter thought beyond the limits of the thought process. Contingency is multidimensionality in nature. New intuitive possibilities arise when chance events enter unexpectedly.

(2) *Process of acquiring symbiotic consciousness*

In environmental philosophy, we are asked how we can cultivate a symbiotic consciousness (B), how we can exercise our free will through our current consciousness (A), and how we can connect this to environmental conservation activities. The routes that motivate activities are intellectual understanding and emotional, i.e. sensible consent, which can lead to symbiotic consciousness. Intellectual understanding here refers to scientific knowledge. Figure 2 is a flowchart of environmental protection activities.

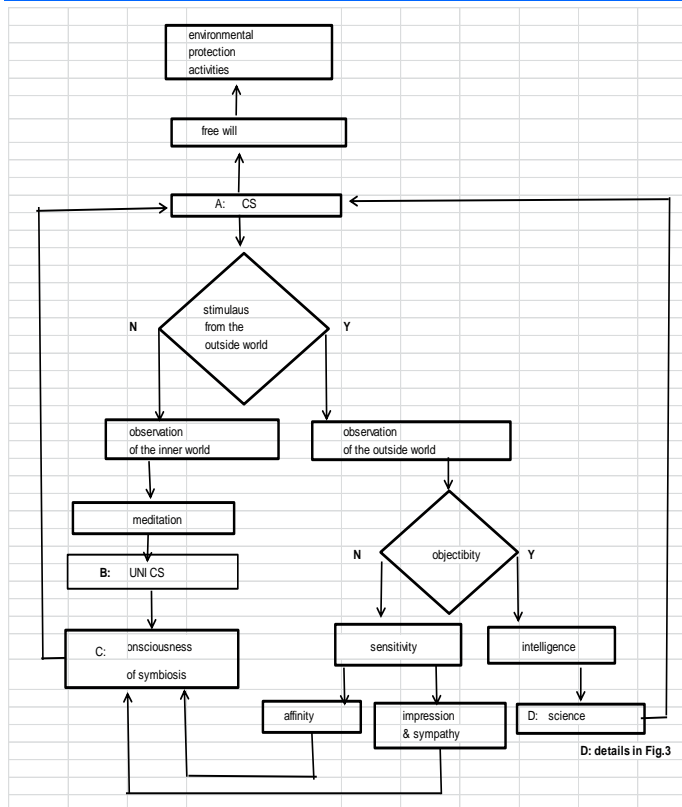


Fig.2 Flow chat for the environmental protection activities

The figure shows three routes as the process of acquiring symbiotic consciousness. That is, the route of scientific knowledge, the route of inspiration. Finally, there is the route without consciousness control. On the route of scientific knowledge, we can enter environmental protection activities rationally through our free will from our current consciousness (A) CS without going through the symbiotic consciousness (C). In the route of inspiration, we can coexist beyond the distinction between self and others by becoming familiar with the natural environment and having affection and sympathy inspired by the natural environment. The route without consciousness control, is one to experience the universal consciousness and transform consciousness into symbiotic consciousness. It does not require external stimuli of the natural environment like the previous route.

① Route based on scientific knowledge

It is a common route from present consciousness (A) CS to environmental protection activities based on scientific knowledge. Symbiotic consciousness (C) is not required in this route. Along with scientifically investigating the actual state of pollution and advancing administrative and social education principles in the direction of institutionalizing pollution prevention measures, social ethics will be fostered by making full use of public order and morals. Scientific knowledge alone does not lead to the development of affective-emotional consciousness. The will to carry out environmental conservation activities is free will modified by social systems and social ethics. Scientific knowledge is human intellectual activity based on observations of the natural world, but there are limits to human capabilities. Scientific knowledge is subject to constant updating and revision. When the subject of science is risk management, such as nuclear power generation and nuclear weapons management, dealing with unforeseen circumstances becomes an issue. The mother of science is the curiosity of

observing nature, but in risk management the controlling party must take responsibility. Figure 3 shows the conditions under which science works. Intellectual curiosity drives intuition, drives intellect, and science is established, but human intellect is limited by preconceived notions, past learning, and experience. By embracing the unexpected, we can push the boundaries of our intellect. To do so, consider fortuitous events that are relevant to the intended purpose. Contingency includes failures caused by contradictions or errors in how the research topic is carried out, but to a lesser extent. This is because if the verification is sufficient, it can be artificially prevented. Fortuitous events can work effectively to change the research topic. Contingency lets us know that failures in research results are due to research objectives that scientists create based on their limited knowledge. There are two types of science. , there are sciences 1 based on logical necessity that do not take into account the intellectual limits of human knowledge, and sciences 2 that are established by modifying or improving the subject of study by chance events. Examining both of these sciences establishes a more reliable science. Validated science has both human intelligence and the ability to transcend it. It's not necessarily an ideal science, but it's hoped that it will help in drug discovery without serious side effects and energy development without risk. Figure 3 details the formation of science. Scientific problems often arise when curiosity about natural phenomena and systems arises. In this case, science uses intuition to build logic and try to solve the problem. To see if the intuition itself is correct, we need to do a logical and reproducible test. Human intelligence is limited by preconceptions, past learning, and experience. Lack of knowledge and wrong choice of predictions that are caught up in past learning and experience lead to unexpected events. Especially in disaster risk management, it is not enough to predict disasters only with countermeasures within assumptions. The March 11, 2011 accident at Tokyo Electric Power Company's Daiichi nuclear power plant is still under trial as to whether the accident was foreseeable [25]. The company's lax risk management had been pointed out before the accident, but the victim's complaint alleges that ignoring it led to the accident. To prepare for the unexpected, we must consider the signs of disaster and unexpected coincidences.

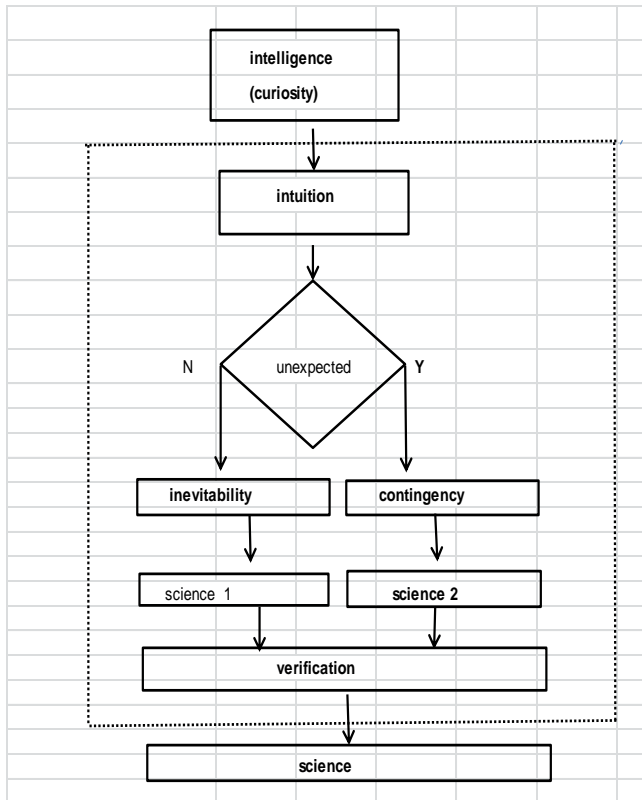


Fig.3. Flow chat of scientific establishment

This diagram is the basic form that represents the birth of science. Intellectual curiosity drives intellection through intuition, and science establishes. The dashed lines in the figure show the details of the birth of science in Figure 2. Details are described in the text.

② Route inspired by Nature: Other in Self and Self in Other

This route is inspired by the natural world, but it is a subjective and emotional route that is different from the so-called objective science route, which does not have objectivity. It is a route that makes we feel moved and sympathetic to the natural environment, and finds a purpose in living with nature. In other words, it is a route to become familiar with the natural world, such as incorporating the natural system into the sphere of life by being inspired by the natural world, or incorporating nature into the world of poetry. Emotional consent is necessary for individuals to take sustained and positive actions. If we are conscious of coexisting with living things, we think about how our actions affect others. Consciousness of the other within the self has the other as an extension of the self, and can know the self through the existence of the other. This is cognition gained through self-observation. In addition, the self in others means cognizing the existence of the self in others, and it becomes the cognition of knowing the self while observing others.

③ Route without consciousness control

There are meditation, yoga, and other methods of contemplating nothingness that do not require consciousness, but it is a route to experience the universal consciousness (NNI CS) and change the consciousness to a symbiotic consciousness. It is a

route to convert consciousness into symbiotic consciousness without stimulation from the natural world. If we are new to meditation and cannot achieve universal consciousness, we can choose the scientific route based on observations of the natural world or the route inspired by nature. The point is that environmental protection activities are carried out sustainably and proactively. For more information on meditation, see the "Meditation" section of "Self-Observation" on the previous page of this text.

III DISCUSSION

Consciousness has been treated as the totality of subjective experiences, but according to Husserl and H.Ey, consciousness becomes objective when considering the aspect of consciousness towards something [6]. Recently, the definition that consciousness is related to the environment has emerged to link consciousness with the real world [7]. However, it will take time to investigate the significance of consciousness in the natural world and how consciousness should be from the perspective of environmental protection. Originally, consciousness dealt with human consciousness, and the part related to consciousness was the brain. Consciousness has been discussed in relation to the brain. As a function of the brain, sleep and disturbance of consciousness were the subjects of research. In recent years, research on stress has progressed, and it has become clear that the general public suffers from various diseases due to stress. The value of introspection, especially meditation without consciousness control, has been studied for survival in stressful societies. Animal consciousness is also being studied because stress also affects animals. Consciousness seems to be discussed in relation to the environment when environmental pollution affects our health and life in general. Environmental destruction can be roughly divided into three categories: first, natural disasters such as climate change, earthquakes and volcanic eruptions, second, environmental pollution such as air pollution, and third, war. Climate change and environmental pollution are affected by human activities. War is nothing but a lack of understanding of the natural environment. The mechanisms of nature, living organisms in nature, inanimate objects such as soil and air, and environments essential for survival are valuable assets that affect the entire planet. When environmental pollution causes soil pollution, organisms living in healthy soil cannot survive in the polluted environment. In particular, the extinction of soil microorganisms has adverse effects on the growth of agricultural crops. As pollution reaches the air and oceans, the damage to the flora and fauna that make up their habitats is increasing day by day. When the development of science and technology extends to outer space, human beings who cannot manage and control the entire universe are causing adverse effects such as space debris. Pollution is caused by the development of science out of curiosity and the actions of social, economic and political leaders who

use it to pursue profit and convenience. The history of science makes it clear that scientists do not judge between right and wrong their curiosity, nor are they responsible for the totality of their results. Wholeness refers to the impact of research results on outsiders. Science, driven by curiosity, is not responsible for the hindrance caused by nuclear weapons or nuclear energy, even if it achieves peaceful use of nuclear energy. International agreements are considered every time a war or accident occurs, but no countermeasures are taken against the harm caused by science until the worst happens. The feedback systems that control technology are always dysfunctional. What can control this is symbiotic consciousness. Reflecting on the worst is not enough, we need emotional symbiosis. Those dealing with science and society must not only treat the consequences of their own actions intellectually, but also have a sense of symbiosis, emotionally respecting others.

The power of education lies in helping and fostering curiosity. To investigate how curiosity changes with age, we conducted a questionnaire survey of visitors to the slime mold museum [26]. The subjects were junior high school students (ages 13-15), university students (ages 18-21), and elementary school science teachers (ages 22 and over). Junior high school students were most interested in morphogenesis (morphology and behavioral changes of slime molds), and university students and above were interested in applications in daily life (applications to IT such as longevity new medicines, slime mold robots, and slime mold computers). Environmental issues were the lowest among all age groups, with no significant age difference, and environmental consciousness was also low. It should be noted here that as the age increases, interest in the slime mold itself shifts from simple interest to practicality. This tendency becomes stronger from infants to adults. Adults' criteria for judging things are related to their usefulness. If we limit ourselves to practicality, our view of things becomes limited and we lose sight of the original possibilities of things. Today, armed aggression and the use of nuclear weapons are being talked about, but these are the worst environmental destructions that destroy coexistence, and are contrary to environmental morality [1] and to the consciousness of aiming for a better existence for ourselves and others. In this paper, we have explained in detail about the consciousness of maintaining environmental protection activities, but in environmental philosophy, the problem is how to foster a symbiotic consciousness and how to actively exercise free will and lead to environmental protection activities. Symbiosis is the protection of an environmental network that respects the diversity of each species and supports survival. The route to symbiosis is intellectual understanding and emotional understanding. Intellectual understanding is scientific knowledge. We know three routes for environmental protection activities. The first is the scientific route, an

intellectual understanding of objective facts that does not require emotional consciousness. The second is the inspiration route, in which one has an affinity with nature or is inspired by nature to gain affection on and sympathy. The consciousness beyond self and others, creates an emotional consciousness of symbiosis. The last is route without consciousness control that does not require external stimulation. This has been reported as an effective way to gain sympathy. The state of consciousness that we seek is mental stability, free thinking unconstrained by anything, and a sense of symbiosis with all things. This consciousness is a subjective experience and cannot be observed from the outside. It takes on an objective character when it actively engages with the environment under universal consciousness. In any case, environmental protection activities are about respecting the right of living beings to live and realizing symbiotic relationships that support each other. In order to sustain activities, we need a symbiotic consciousness accompanied by intelligence and sensibility. Rediscovering oneself through clues in others, all of the external world, is a process that leads to self-actualization. As long as environmental conservation activities aim for symbiosis, we will have a universal consciousness that transcends the boundaries between ourselves and others. Achieving symbiosis is a practical activity that becomes an emotional and intellectual activity. Practice means that an individual's sensitive conscious experience is reflected in actual intellectual activity. Possible ideas include the dissemination of environmental philosophy, environmental consciousness, research based on observations of nature, and consideration of laws and the way society should be. Environmental protection does not mean sitting idle. The apparent natural world can make life difficult for living things. On the other hand, however, nature provides diversity and environmental networks that respect survival. On the other hand, nature not only gives all things a system and order imbued with its wisdom, but also gives us the sensibility, intelligence and ideals for self-actualization. Our attitude towards nature is to use this intelligence and sensibility to complement her work without going against our ideals. Even in situations where symbiosis is difficult, aiming for symbiosis as an activity that respects the survival rights of living things that nature requires is the path to self-fulfillment. Finally, we are so accustomed to man-made environments that we have fewer opportunities to feel nature. By getting closer to nature, we need to understand that the natural environment is all around us. The natural systems that work inside and outside of us, microorganisms, plants that constantly produce oxygen, animals that give us comfort, vast oceans, and countless stars expand our world view and convey to us the connection of life.

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Note 1. Out-of-body experience

I once had an out-of-body experience. In my indoor meditation after sunset, trees and mountains floated into the blue dawn, and everything vibrated with each deep breath. The feeling of rising to infinity continued. It felt like I was in an elevator. Still, I was sensitive to external events, such as noticing lights and sounds in the real room. This experience is characterized by (1) the feeling that my consciousness is outside my body, and (2) a symbiotic consciousness with everything, i.e. oneness with everything I can feel: trees, mountains, and blue skies. (3) A sense of the outside world. Sense of what is going on around us. (4) Out-of-body anxiety. (5) Sense of knowing what we are doing (Persistence of self-awareness). (6) Return to the real world from out-of-body experience. In an out-of-body experience, there is no sense of security like universal consciousness, but rather a sense of unease.

Note 2. Near-death experience: extrasensory perception

The author's mother was hospitalized for three months with terminal cancer. She had lost her consciousness, but got up from her bed, she smiled and said, "Two white kittens are cute," and she passed away. She always said she wanted to go back to her hometown, which is 350 kilometers away from the hospital where she was born and raised. Her family home had a cemetery where her parents were buried. After my mother's funeral, her sister-in-law, who lives at her parent's house, contacted me to say that she had been taking care of two white kittens from an acquaintance of hers for the past two weeks. This fact is too specific to be denied as a coincidence. Nor could my mother, who was unconscious, know what was going on in her faraway family home. There is no way to scientifically prove this phenomenon. The scientific explanation is that consciousness has something to do with the brain, such as secretions in the brain. The task of science from now on is not to deny the facts that support mysterious phenomena, but to elucidate them. As for clairvoyance, there is the example of H. Bergson. After receiving a report that his son, who had died in battle, stood by his mother's bedside, Bergson objected to the doctor's claim that it was a coincidence.