Journal of Social Science Humanities and Literature, Vol.7, Issue 2, (Apr)
ISSN 2277-842X **2024**
DOI: 10.53469/jsshl.2024.07(02).02

Forest Thought in the Stage of Forest Industrial Utilization

Wenyue Wei

Beijing Normal University, Beijing, China

Abstract: ***The rise of modern science has brought about "The Disenchantment of the World" summarized by Max Weber. Disenchantment means a fundamental change in the way of understanding the world. Scientific discourse with rationalization as its essential feature has replaced religious discourse with faith as its essential feature and has become the most dominant world view. Disenchantment shows the basic characteristics and trends of the overall development of society. It strips away the mysterious meaning of the world by criticizing the construction of the world by the subjective spirit, and uses scientific and technological rationality to present the structure and appearance of the world. In this process, the world becomes an object to be understood and transformed by "I", rather than a community that shares weal and woe. Descartes' metaphysical dualism and mechanism established the main view of nature at this stage. Nature has become a huge and complex mechanical system, and mathematics and geometry are the most effective tools to describe mechanical systems. In an era when the world has become a machine, forests have also lost their subject status and become objects to be analyzed mathematically; at this stage, forests exist as "resources" in more and more places. Then people become users and beneficiaries of resources, and forests become the objects of human management and use. Scientific methods have become the main method in all fields of society. Forests that conform to mathematical ideals have become standard forests. Forests that were originally wild have become huge laboratories, filled with mathematical rules and human utility.***

Keywords: Objectification; Mechanization; Anthropocentrism; Empirical methods; Laboratory.

1. THE TRANSMUTATION OF NATURAL VIEW: FOREST AS OBJECT AND TREES

At this stage, experienced the Renaissance, the Enlightenment movement, the view of nature and before the fundamental change. Previously, in the West, the main Greek view of nature dominated. The Greek view of nature was based on the principle of nature infiltrating or filling the mind (mind), which is the source of the rules or order of nature. They regard nature as a world of motion, and motion is due to vitality or soul (soul). Movement is one thing, and order is another. The mind, in all its forms, is a legislator, adding order to itself to all things to which it belongs, that is, itself and its circumstances. Nature is not only a dynamic world full of movement, but also a world of order and rules. Therefore, in the Greek view of nature, nature is alive and rational (intelligent), not only a huge animal with a soul and life, but also a rational animal with its own mind [1].

In the East, the traditional view of nature is characterized by a gasification world view. It regards the universe as a continuous whole, and the medium of the continuity is qi. Qi is not only through the universe, but also between the spirit and the material. Such a view of nature is both holistic and ontological. In philosophy, qi is the ideological resource shared by Confucianism and Taoism, and the thought of gasification also deeply affects the Chinese cultural and artistic aesthetic tradition. From the pre-Qin Zhuangzi's "joy of knowing fish" and "one of the spirit of heaven and earth", to the "view of nature" accepted by Neo-confucians during the Song and Ming dynasties, the setting behind it is all a state of spirit and flow. The natural view at the core of the Song and Ming dynasties with "benevolence" not only means a kind of endless vitality, but also emphasizes the sense of "benevolence". As Cheng Hao said, " benevolence, one is the same with things."This sense of sense is distributed between the heaven and all things, people also belong to a link of the sense. Such a view of nature is the image of heaven and earth that all things are naturally generated but interact and change.

This recognition of belonging to the same whole as all things will prohibit the use of the dichotomy of subject and object in nature. Seeing nature as an external object is like creating an artificial barrier, shielding the real vision and reducing our ability to experience nature from within. Although China traditionally does not lack the term "external" nature, such as heaven and earth, mountains, rivers, vegetation, and all things, they do not build an artificial barrier to separate man from nature, and there is no "nature" that is completely relative to man and alienated from man. Although all things have an independent morphology, it does not exist in atomic isolation, but is constantly integrated into each other in the changing sense of gasification. Between consciousness and matter, internal and external, body and nature, there is always a gasification sense.

Through the work of Copernicus, Tresio and Bruno, the Renaissance concept of nature is organic away, refusing to admit that nature has reason and life, and it is impossible to move itself. Its movement is given by the outside world, and its law are also imposed by the outside world. Nature is no longer an organic whole, but a machine, one designed and put together by the reason outside it, and driven to arrange the parts of an object towards a clear goal.[1]P6 If the Greek view of nature was based on the analogy between nature and man, then the Renaissance mechanical view of nature gave way to the Christian ideas of creation and omnipotent God and human experience in designing and making machinery.[1]P9 Enlightenment rapid development of science, Newton mechanics, Galileo astronomy, science, rational, empirical concept of natural mystery was gradually solved by scientific experiments and rational thinking rise of natural science, nature is not only the object of scientific cognition and research, and kill and meet the different desires and needs of human object, the connotation of the concept of natural change.

This shift can also be seen from the linguistic origin of the word "natural", "natural" another etymology source of ancient kosmos, it is different from modern cosmos, refers to the coordination and the existence of things development rule overall, so kosmos in addition to the organic physis, also contains the individual practice and social structure of habitual lifestyle, normative customs and legal customs, and dominate all the rules of the development of the universe, it originally both the meaning of theology and people, and physical significance. After modern times, kosmos was equated by philosophers and scientists with cosmos, namely the objective physical world of natural science research. Nature therefore loses its normative authority, and is interpreted as the whole of the material world (or objective things), as all the things that exist, or as the material world itself. Since then, this natural concept of science in the scientific and enlightenment dimension of modern capitalism has replaced the previous meaning of "organic whole" and been endowed with the meaning of "the accumulation of things".

By the 17th and 18th centuries, science had equaled nature with a world of spatially infinite and moving objects, with no qualitative difference and being driven by universal and purely quantitative forces, the object of Galileo, Newton, and their successors to Einstein. The forest has also become a machine, and the forest under the nationalism has become a collection of trees, planted and cut down under the unified planning, and providing endless wood for the country in the ideal state. Quantitative and mechanization become the image of the forest, and its richness and complexity are removed.

1.1 Subject and guest two points: the forest becomes the other

Theoretically speaking, in the history of western philosophy, Plato's "idea theory" opposes the idea world to the perceptual world, and initially has the ideological components of split thinking and existence, subject and object in ontology. In the Middle Ages, the opposition between heaven and man, soul and body, spirit and nature, religious life and secular life contains the idea of subject and object. The Renaissance "set foot on a turning point" in history, and people "discovered nature and themselves", which laid the foundation for the proposal of "host and guest two points". Descartes, "I think so I am here," has formally completed this proposition.[2]

Descartes in Talking about the Methods compares the traditional authority to a wrong forest, and on the other side of the forest is the land of reason. Once he reaches the Promised Land, Descartes redefine not only his relationship with tradition, but also his overall relationship with nature.

He doubted the truth of all things once thought to be true; yet the self-evidence of the fact that "I think I am" was so persuasive that it would be the unshakable basis of the new mansion of knowledge which Descartes was to build. On the basis of its certainty, Descartes assumes to prove the existence of God. Descartes reserved a role for God in his philosophy, who now as the guarantor of metaphysics, plays a true correspondence between my clear and distinct thoughts and the external objects these thoughts represent in my mind. But such a God is no longer the God of the Christian faith. He is not a God to whom I can pray, plead, kneel, and seek salvation or worship. The God of Descartes has gone cold with the seriousness of metaphysics.

The proposition of "I think so I am there" holds that thinking is the essence of human beings, "I" is the root of thinking, is the "subject" that can think, "self" or "subject" is an indisputable and self-evident fact, and thus introduces another entity opposite to the subject, that is, the object. The subject is the spiritual entity, and the object is the material entity. Each of them has its own independence. Understanding is a kind of communication between the subject of the acquaintance and the object of the acquaintance. From this proposition, Descartes clearly formed the mode of "subject and guest division" in the history of western philosophy, and established the position of

human subjectivity. Descartes was the founder of modern philosophy, which takes thinking as the highest principle. "From him, he began a new era of philosophy", and "philosophy suddenly turned into a completely different scope, a completely different point of view, that is, into the field of subjectivity". Since then, the dichotomy between subject and guest has occupied the whole history of Western philosophy.

In the second and third sections of "Talk about the Methods", Descartes tells how he got this insight. He describes his life before discovering the stable foundation of knowledge - At that time he was still lost in a world of unreliable views and beliefs, not knowing how to effectively distinguish between truth and falsehood. While algebra and geometry work very well as a truth-seeking approach, this approach still lacks a metaphysical foundation. So he decided that until he found the foundation for his mathematical approach, he would follow the "temporary code of conduct" in real life, and remain firm and resolute in his temporary course of action, no matter how suspicious it may seem:

Example passengers lost in the forest, they must not random east walk west bump, also cannot stay in a place, must always be in a direction as straight as possible, although the direction in the beginning just accidentally selected, also don't change direction because of small reason, because do so even if not just go to the destination, at least finally can go to a place, better than trapped in the woods [3].

This confidence in the policy comes from the confidence in the method.

The knowledge that Descartes' rationalism pursues is not only the kind of speculative knowledge that the traditional school pursues. It has a positive and practical ambition. It is not knowledge for knowledge's sake, just like the technical knowledge of a craftsman. What these methods promise is neither salvation nor wisdom, but power. They lead to the mastery and possession of nature, that is, towards the possession of the power traditionally distributed to God. Reason, method, and technical skill come together at the end of the discourse, in the secular confession of the will to power. The goal of mastering and occupying nature represents the highest form of practical activism. The new philosopher is not so much a saint as an engineer, the "empty plane" - rational design there - will not be empty state for long, because the geometric city grows out of the desert. Similarly, once mastery and possession become the agenda of The Times, the forest is no longer a place of random chaos.

At the end of the Discourse (Discourse), Descartes reveals the true ambition of his method. Of some general views he has gained from physics, he said:

We can ignore the teaching of speculative philosophy, with these views found a practical philosophy, the fire, water, air, stars, sky and the power of all objects around and role of understanding, like know what craftsmen do, then can improve the occasion, make full use of these forces, become dominant masters of nature.[3]P49

Descartes laid the dominant position of the rationalist mode of thinking in the whole field of thought, and rationality became the unique symbol of thinking. In order to highlight the uniqueness of the mind, Descartes will material (natural) and mind (rational), and give the mind with entity, thus non-human elements from theory, this approach directly led to the binary way of thinking, make rational and sensibility, mind and body, culture and nature, thought and emotion become mutually independent two parts. Therefore, the world is divided into "external nature" and "humanized nature". Only "external nature" is the nature in the real sense, and nature exists independently from human thinking. This way of thinking highlights the priority of reason and gives full play to the initiative of the subject, but it has the defect of alienated nature.

From the perspective of practice mode, the change of the concept of nature is closely related to the revolutionary change of capitalism in social practice, because the conceptual dualization of nature is mutually causal with the change of objective sociality. The original accumulation of capitalism is between human and external nature, and the separation between human and external nature internal factors, specifically is the original accumulation to break and reorganize the public land and public property, the strong social change roughly separate human and external nature, and promote the commercialization of the land.

Nature is objectified and objectified from both the dimensions of theory and practice. Nature, as the opposite of man, has lost its true existence, and the relationship between nature and human beings is no longer equal. Man wantonly transform nature with his cognition of the laws of nature, and nature is undergoing objective alienation.

The forest after the separation of subject and guest becomes the analysis object of human reason and is inevitably mathematically. Mathematics, Descartes's favorite knowledge, said, " I love it, because its reasoning is clear; but I could not see its true use, and was surprised that it had always been only mechanical technology, that they had not built a building on it. On the contrary, the ancient pagan scholars wrote the weathered articles, like magnificent palaces, magnificent, but only built on the sand."Algebra and geometry, as the basis of Descartes' approach to pursuing the unquestionable truth, became the basis of the new forestry science. Thanks to this method, the forest is no longer a random place and becomes an orderly chess board. When it becomes a computable quantity, it also becomes geometric [3].

1.2 Mechanical forest: as a collection of trees

The mechanized idea of nature is not a product of modern times, it has its source in ancient Greece. The original meaning of atoms is "inseparable". The founder of atomic theory is said to be the base wave (Leukippos), and the systematic representative is Democritus (Demokritos). Since their own original work has long been lost, we can not accurately distinguish between the two views, but to collectively call the atomists. Atomic philosophy represents the highest achievement of Socrates' early Greek natural philosophy, successfully explaining the colorful and kaleidoscope of natural phenomena through the combination of indivisible atoms and voids with different forms. Thus, it is regarded as the earliest representative of the materialist line in the history of western philosophy. From the perspective of nature, they are the largest and most typical representative of the natural tendency. This typicality is concentrated on their establishment of a systematic and thorough ancient mechanical natural view system. There are two basic principles throughout this system: the material "atoms" and the "void" are the unity of all things in the world; all things are generated by necessity. But here is not the mysterious will, but because the shape of the atoms is different, so the atoms will collide with each other, this impact will produce new things, eliminate the old things. The inevitability of the impact between atomic volume and shape is the origin of everything in the world. Aus recorded: " All things are born by necessity; for the cause of all things is the whirlpool, which Democritus calls necessity."" (On the nature of necessity) Democritus thinks it means to indicate the resistance, rotation and impact of the material."[4]

Mechanism as a world picture emerged in the 17th century. Its previous picture of the world is Aristotle's organic view of nature."Aristotle holds a teleological view of nature, he understood the nature as the life, the nature (or nature) as such a thing: its itself is the purpose, is the unity with itself, is its principle of activity, not converted into other things, but according to its own unique content, regulation changes to suit for itself, and keep themselves in change, inevitability is the purpose of external conditions. The inherent purpose that exists in the thing itself, and regards the necessity as an external condition of this purpose. Form and material, potential and reality are the basis of all birth and death change, movement displacement, nature is full of dynamic organism, is the existence of life.

Although the medieval translation movement and the university system, but at the same time translation of many other science and philosophy, including Euclid "geometry originally" and "optical" algebra "is the natural science mechanical thought of mathematical language, mathematical thinking and the direct source of mathematical science method, Ptolemy's" astronomy " opened the important prelude to modern astronomy. Because precision science and natural philosophy courses are fixed as college courses, they have become institutionalized over time. Therefore, medieval translation and emerging universities institutionalized science and natural philosophy.

Thus, in the 17th century, omechanism emerged as a picture of the world. Compared with the previous organic theory and teleological view of nature, the mechanical view of nature is based on the belief that nature can be recognized and grasped for reason, and is the embodiment of the rational spirit. The academic community agreed that Descartes had the most profound influence on mechanical philosophy, because Descartes gave mechanical natural philosophy rigor and elaborated it in detail. The world picture of mechanical philosophy is embodied in Descartes' classical qu optics, philosophical Principles and the Guiding Principles of Seeking Truth."Mechanism, as a classical picture of the world, is directly provided by mathematical science. God in mathematical science is a watchmaker, who creates nature as a precision instrument. Nature as an instrument has no life, but only material as an object, so it can be used by human beings without emotional or ethical baggage. Mechanism implies reductionism and determinism, which are based on the world outlook of mathematical science."Taking experiment as the source of knowledge, taking mathematics as the expression language, taking logical deduction as the guiding principle, seeking the causal law confirmed by experiment, this is the mechanical way of thinking and research method, it has become the main way of thinking of people [5].

Nature and man are divided and degenerate into a precise machine. People need to use rational methods, namely mathematical experiment methods, to understand and manage this machine. Natural mechanical make it is interpreted as a passive, material and lazy category, the specification dimension is stripped out, people also become the opposite of natural, natural as a machine and material at the same time also evolved into human interests and demand service tools, the machine could not bring extra surprise, because it is under the design of human to become a machine. Machines are born to master, and all the knowledge about the rules of their operation is to help people control nature and consolidate power.

The natural object becomes the opposite of the subject reason, which is the object of rational understanding and utilization, while the mathematical method of algebra and geometry is the method of rational understanding of the object, so as the object of cognition, nature presents the characteristics of mathematics and mechanization. The forest becomes a mechanical forest, and its spiritual factors and complex life associations are stripped away and become a collection of trees, which is easy for analysis and management. The forest became a new research object of forestry science, and the state assumed the role of Descartes. Modern forestry reduces the forest to its most literal or the most "objective" status: wood. A new "forest mathematics" even measures them by the volume of disposable timber.

Forestry science originated in Germany, its theory, practice and teaching mode for the forestry science and management, classical writers of German forestry science, such as htig, kota, John Henders hagen (Johann Hundeshagen) and Friedrich field (Friedrich Pfeil) work, based on the traditional quantitative method of measuring and regulating forest. Thus, methods and economic laws reuse the forest under the general concept of "utility", or even in cases where utility is aesthetically considered: for example, as a recreation park, or as a "museum" of primitive nature. Needless to say, we do not go beyond this idea. The Enlightenment remains our major cultural heritage. In other words, to this day, we still advocate the protection of the forest on the basis of its numerous uses and interests. Why do we want to protect the tropical rainforest? Scientists believe that their abundance of unique plant species may one day prove useful for science and medicine.

The forest, as a collection of mechanical trees, can be packaged mathematically. The rich differences in the trees are erased, the spirit of the trees is removed, and the very different trees become trees with stable physical and chemical properties. Trees become things that can be filled in in the calculation form. Carl Christopher Oyi TETT (Carl Christoph Oettelt) established the techniques and methods for drawing and preparing forest management plans. In the 1760s, he published the book Practical Proof (Tree Measurement Methods), which for the first time systematically defined the scientific method of measuring standing trees and calculating wood products. In 1804, John Heinrich Kota published Systematic Instruction for the Assessment of Woods ("Forest Valuation System Guidance", which edited these methods into a concise and widely accepted technical instruction book on forest management. After 16, he published the Directions for the Organization and Assessment of the Forest (Guide and Organization of Forest Assessment.[6]P28The focus of forest becomes trees, the significance of tree management lies in trade, as the forest of trees becomes an important source of economic benefits.

2. FORESTS UNDER THE ANTHROPOCENTRISM

Anthropocentrism refers to the concept of mankind as the most important and valuable being in the universe. This concept is manifested in emphasizing the human self-value, rights and interests, while ignoring or less considering the value of other creatures. This is an ancient ideology. The ancient Greek philosopher Protogola said: "Man is the measure of all things, the measure of the existence of those who exist, and the scale of the people who do not exist", which can be considered to be the consciousness of the early human center. But this sentence is not from the perspective of ontology that people determine the existence of all things, but from the epistemology point of view that only people can define the meaning of things. Medieval Christianity inherited Judaism's non-repetitive and linear concepts of time, creating the story of Genesis, everything the Almighty God needed to create man, and clarifying that they serve no other purpose. The core of this anthropocentrism is theological teleology, which prevailed with the spread of Christianity.

Before the emergence of modern science, although there was also a serious anthropocentrism ideology, the whole world was still immersed in theology and agnosticism. Nature is the form of an organism, and the laws and movements it presents are out of its own reason or the reason of god, while the modern separation of subject and object, rationalism and the birth of science and technology deny the reason and life of nature, and restore it into a machine.

When nature is understood from the perspective of a machine, accordingly, it will be understood from a technical, technical, practical, and efficient perspective. The mathematical experimental method of this period gives this perspective higher efficiency. Since the forest has become a collection of trees, the development and use of trees will be combined with the latest forestry technology, more practical and more uniform.

2.1 As an object of administration

In the Annual Demographic Report to Louis XIV in 1686, the author writes, " Is it not a great satisfaction that the king knows at a fixed time the total amount of subjects, the resources, wealth, and poverty; the number of nobles and ministers, lawyers, Catholic believers, and other religions, and their distribution in different regions?... Is it not a meaningful and pleasant thing for the king to sit in his office for a short time the past and present state of his kingdom, and with certainty what constituted his authority, wealth and power?"This sense of management of nature finally gave birth to the bureaucracy of the country's financial institutions in the 18th century.[7]P3 The Enlightenment of the 18th century made a new important need to improve financial management and resource management, which was thought to be achieved through science. So first in Germany, a new science was born: cameral sciences, which can be translated into mercantilist fiscal science. The word originated from Kammer, meaning the opinion carefully given by the prince's advisers.Cameral sciences It includes economy, finance, mining, agriculture, trade and other aspects. Its core spirit is to manage all these resources in a rigorous mathematical way and make overall arrangements to make them more appropriate.

Forest management is an aspect of state management, and forests show the scale of royal wealth and resources, and completing this task creates new links between administration and science, with the result of the quantification and rationalization of natural and economic management. Germany leads the world in forestry management, and its theory, practice and teaching mode have become the starting point of forestry science in other countries.

The complex properties of the mathematical, mechanistic forest are abstracted into a single component: wood. Once mathematical, single, it is convenient for unified management. Under unified management, trees with multiple uses are replaced by abstract trees represented by a single volume of wood and fuel, viewing forests from a pragmatic perspective that contributes economic value to the state. This is best seen from the shift in the definition of forests.

As mentioned above, in manwood forest law, forest is to some extent protected by law national forest park, and in the 18th century enlightenment thinker del "encyclopedia", "forest" entry focus is almost all the public utility of forest products, and tax, revenue and can produce profits. The so-called habitat forests have disappeared and are replaced by economic resources that can be managed efficiently and efficiently.[7]P7 In the perspective of "useful" and "useless", "valuable" and "worthless", some plants and animals are considered the former, while those competing with them are cleared to give away space to them. But their destination is for human use.

The operation of a country needs to concentrate on doing great things. At this time, it is reasonable to simplify and abstraction of complex problems, but blindly simplify and abstraction has hidden dangers, because in the concrete implementation, those specific practical experience that has not been included in the social management norms may determine the direction of things."The biggest benefit of a narrow pipe view is the ability to focus on only limited features in the face of complex and difficult facts. This oversimplification in turn makes the phenomenon at the center of the visual field clearer and easier to measure and calculate. Simplification coupled with repeated observations allows for general and generalized conclusions on some selected facts, resulting in highly simplified knowledge and enabling manipulation and control of these facts.”[7]

This step is to create a forest for state forestry officials to count, manage, measure and estimate. The fact is that forestry science and geometry, supported by state power, gain the ability to transform real, diverse and messy native forests into new, single forests that coincide with their technological landscape of management. For this reason, dwarf trees are removed, tree species are cut (often single species), and trees are planted in rows in larger woodlands at the same time.

This management activity produced single-species, forests of the same age, which ultimately transformed standardized trees from abstraction to reality. German forestry became a prototype for the transformation of a chaotic nature into an orderly scientific construction. The practical purpose encourages mathematical pragmatism, which in turn takes geometric perfection as an external symbol of well-managed forests, and eventually the rational and orderly arrangement of trees gives new possibilities for controlling nature.

Legionization has become a trend [7]. The trees in the forest are arranged in rows and in one way, and they are measured, counted, cut down, and updated in new arrangements and lists similar to the draft. Like the army, they are also divided into different levels above and below for different objectives, and are under the control of a single commander. Eventually people don't even have to see the forest themselves, simply precisely "read" them on the chart of the forest officials' office. These new, cleared forests are very easy to manage. Trees of the same age are lined up, underbushes are cleared, and cutting, hauling and replanting have become routine procedures. Because the forests are of high order, the forestry workers can use the written training documents with extensive applicability. In the new forest environment, unskilled, inexperienced workers can do their job correctly just by doing it by standardized rules. Cutting down logs of roughly the same thickness and length can not only successfully predict the output, but also provide roughly the same market products for logging teams and merchants. Here, business logic and bureaucratic logic are consistent; a system that promises to get the most payback from a single commodity for a long time, while also including itself in a centralized management design. However, the effect of forest management is not satisfactory. Nancy Langston's (Nancy Langston)' s study of the Blue Mountain forests in eastern Oregon and Washington, properly named The Forest Dream and Nightmare (Forest Dreams, Forest Nightmares:), illustrates the meaning of this new discourse. In the 19th century, White Americans came to the Blue Mountains to develop natural resources such as rivers, forests and meadows they found there. Yellow pine (Pinus ponderosa) was cut down brutally and indiscriminately, large areas were covered by uncultivated paths, and the rest was ravaged by fire. Large numbers of cattle, later sheep, ate up natural pastures, and wild animals were hunted and went extinct. By 1906, professional federal forest managers took over the job and applied their "orthodox" discourse to the forest. These forests are withdrawn from the public domain and placed in new forest reserve systems. These professional foresters began to curb corruption in land disposal, as well as greed in speculation and resource abuse. Their job is to achieve a shortage of wood (Gifford Pinchot, 1865.8-1946.10, After receiving a forestry education in Europe, he established the country's first private forestry experiment station on his father's estate, And the first chief of forest, Modern forestry management concept of sustainable management), "Bring the greatest benefits to the most people in the longest time" (the greatest good of the greatest number for the longest time). With selfless, enlightened scientific knowledge, they implemented a management system designed to maximize forest production and restore mountain grasslands. The less productive old timber (decayed and immature) was cut down and replaced by young, faster-growing trees, which secured the good supply of timber and protected the watershed. Encouraged by a sense of urgency and optimism, they see themselves as "... the heroes are engaged in an epic battle against big business, outsiders, insects, disease, and the forest itself". But the Forest Service has turned the forest dream into a forest nightmare, and by around 1980, the results of the past have become apparent. The logging cycle is getting shorter and shorter, with less than 30 years of light logging destroying the ecology. Insect infections become more frequent and more destructive, and wildlife collapses [8].

2.2 Practical thought below: simplified to wood

Even before the development of scientific forestry, the early modern European countries viewed forests mainly through the lens of fiscal revenue. While officials did not ignore other considerations, such as the timber needed for shipbuilding or state construction, and the fuel needed for economic security, the king's interest in forests is only a figure from the lens of the revenue: the revenue that the timber brings him every year.

Before forestry became a science, the state was already seeing forests from a financial perspective.However, besides the abstract financial numbers, forests have important values that cannot be included. These values are not traded in the market, but play an important role in the daily life of people and the reproduction of animals and plants. These trees, shrubs, and other plants, of no trade value, may be used as fodder, and may be used for the food of men or livestock, as mattresses, fences, and for pharmaceuticals and dyes. Each kind of tree, or even the different parts and different growth stages of each tree, has different properties and uses. And these just do not conform to the requirements of the simplification order, also do not belong to the timber trade, they can not be fully commercialized, their value can not be fully reflected by the exchange value. So they're marginalized in the new social environment.

In the 17th century, a popular encyclopedia of native plants recorded the phrase "elm tree":

Elms have different general uses, especially when often in very dry or very wet, constantly changing environments. So it is particularly suited for work in water, such as mills, wheel supports and outer edges, pumps, aqueduct, underwater boat boards... wheel workers can also use it for hand saw handles, handrails and doors. Elms are not easily split... suitable for cutting boards, molds, linings, coffins, drestables, large disc game tables; a sculptor, or

curious worker, may use it to carve fruits, leaves, shields, statues, and many ornaments on the building... Finally... the leaves, especially the female leaves can not be taken lightly when the winter or hot summer, hay and fodder are expensive, these leaves are the main feed for cattle... the mashed fresh elm leaves can heal new wounds, plus the bark is boiled to heal fractures.

These small use in a unified, simple, abstract, commercial perspective, can be said to be worthless. But this is exactly the life experience and wisdom of people for thousands of years, and it is also the actual need of animals that cannot express their thoughts in human language. In addition to these practical uses, trees also have religious beliefs, forests have the value of spiritual healing and so on. The words that people use in organizing nature reflect the concerns of their users. Using "natural resources" instead of "nature" reflects people's attention to nature that is "useful" to people. Under the fiscal dominance of the state, the multiple uses of the tree were replaced by the abstract trees represented by the volume of a single wood and fuel. In the case of natural objects, which are less related to finance and human needs, such as their role in witchcraft and worship, are also neglected. Only the practical parts for people are reinforced.

As mentioned above, in Manwood Forest Law, forest is the judicial field prohibited by the royal decree, in which the plants and animals are protected, although intended for the entertainment and majesty of the king, but objectively protect the biological environment. For Manwood, the forest is essentially a refuge away from the human world, a natural refuge where wildlife can be safely inhabited under the protection of the king. It has nothing to do with the public interest, not with practicality. Instead, forests mark the limits of human wilderness development. The royal prohibition was meant to protect their wildlife, which in turn was associated with the king's "pleasure and entertainment". In the royal temple, the king conducted a ceremonial chase that symbolically reproduces his role as a conqueror and conqueror of the wilderness.

In the encyclopedia of the Enlightenment - Diderot, "Forest" focuses almost entirely on the co-utility of forest products, taxes, fiscal revenue and profits generated from them.The latter forests are technically lost as habitats, replaced by economic resources that can be effectively managed. Forests are technically reduced to "vert", or green plants, and are merely a wooded place of all ages and species. Leroy never mentioned the issue of wildlife. Forests serving as habitat have disappeared. If habitat is not a problem for Leroy, it is because the forest is already considered in a timber way. In turn, this timber is considered in the light of its use value. Use value is associated with the concept of "right", the rights of the state, the rights of private owners and the rights of future generations. No mention of forest wildlife rights, anywhere. By contrast, Manwood's definition of forest is dominated precisely by what he sees as the natural rights of merry beasts, guaranteed by, and inseparable from, the sacred rights of sovereignty itself.

In his article for the Encyclopedia, LeRoy wrote that the definition of forest as a large woodland composed of trees would give way to a more concrete concept of the quantifiable amount of available (or taxable) wood. The usefulness of forests is measured by a quantifiable quality. Leroy never talked about animals, for in his vision the forest had been envisioned as wood. Wood is measured in light of its useful value. The persistent maximum availability of the forest and its constant renewal have become the main problems of the new science of forestry.

The main value of forests became to provide trees, which can also be seen from the theory of forest management at that time. The first technical book on forest management activities Sylvicultura Oeconomica "(Economics of Tree Cultivation" was written by Hans Karl von Carowitz (Hans Carl von Carlowitz, 1645-1714). Carowitz was born into a forest family and grew up strictly trained by Jean Baptiste Colbert (Jean Baptiste Colbert), who launched the French forestry revolution. He grew up in Europe after the 30-year war. Mining required a lot of wood as a pillar, when natural forests were exhausted and an artificial afforestation was needed. In this context, Karowitz wrote the Economics of Forest Tree Cultivation, which proposed the technology and management methods of sustainable forest management (sustainable forest management). On the cover, Karowitz explains the economics of forest cultivation: it is about how to cultivate the forever strong scarce wood in the wild, by sowing, cultivating seedlings, land preparation, planting, tending and other technical measures in cutting bases and barren mountains [6].

Karowitz clearly expresses the concept and mode of sustainable forest management, with the aim of achieving sustainable careful management of forest resources from seeds to wood utilization process (careful management of sustainable forestry resource). The contents of the book involves economic factors such as forest growth rate, market price change and interest rate change, studies the relationship between business activities such as forest cultivation and cutting and economic benefits, and emphasizes the combination of forest resource growth and economic benefit accounting to realize the maximization of benefits. The main goal of sustainable forest

management is to obtain continuous wood supply through plantation, from which is the commercial operation of plantation.

Kota, the master of Fazheng forest, believes that forestry contains three business objectives: first, to maximize the production of timber for the society under good productivity conditions; second, regardless of the future, to maximize the needs of the society for the forest, rather than the expectation of operators and woodland owners for monetary income and timber income [6]. As wood, forest became a project of social management to meet the needs of people.

3. THE FOREST UNDER THE SCIENTIFIC EVIDENCE

In the mathematical transformation of nature, the differences between things are erased. The essence of mathematics is to reduce the diverse world to a single set of quantities, so that the difference of mass reduces to the difference of quantity. In this way, all phenomena in the physical world have become calculated and expressed by quantity, which is equivalent to eliminating qualitative diversity and opening up computable fields.[9] Mathematics and homogenization, along with the rise of experimental methods, make the forest also become the object of the eye of science.

The development of forestry science originated in 1765 – 1800, mainly in Prussia and Saxony, and eventually became the basis of forestry management techniques in France, England, the United States, and all of the Third World. Forestry science appeared in the context of centralization and is a branch of commercial financial science, which aims to simplify the financial management of the kingdom and follow the laws of science, so as to carry out systematic planning. These new clear forests are more likely to manipulate experimentally. Complex native forests have been replaced by a forest where various variables remain constant, and the effects of fertilizer application amount, rainfall, and weeding are easily observed in woodlands of the same age and the same tree species. This makes forestry a laboratory. The simplification of forests makes it possible to perform the evaluation of forest management in proximity to laboratory conditions.

3.1 Forest under mathematical methods

After Descartes, the scientific method becomes a rational observer, that is, neither mere reason nor mere experience. Understanding nature is a particular science that means being operational from the perspective of "managing" the discoable "laws" of our changing world. In short, the scientific approach is a constant proof of evidence-based conclusions.

As a science, forestry was born with the image of forest from a biological refuge to a single wood resource. This shift is the foundation of managing the forests with mathematics and geometry. Germany is the pioneer of forestry science. New methods of forest management based on wood quality or volume have replaced the old area-based forestry. These methods were made possible by the creation of the "forest mathematics". Forest mathematics is a technical science through which foresters can calculate the amount of wood on a given terrain, predict the rate of forest growth in the distant future, and specify the time frame for cutting down trees based on precise mathematical charts. Algebra, geometry, stereometry and wood metrology combine to form the forest science of sustainable yield forestry. Foresters became national scientists, and a new professional category emerged: forest geomeologists, or forest geomeologists, who measure the boundaries of forests, draw maps, and calculate basic data. The founder of new forest mathematics - like Hartig, Kota, Beckman and - turned German forestry into a truly rigorous measuring and quantitative science. A mathematical analysis of the forest was a victory for German forestry, putting it far ahead of any other country.

The change of forest imagery to quantifiable wood leads to morphological changes in the physical composition of the forest. Natural trees with different tree species and tree ages are gradually replaced by forests with uniform type and specified planting time. The new monoculture forest is based from the abstract concept of "normal" forest: an ideal forest whose random and natural variables are reduced to a minimum.

The result of applying the simple and beautiful form of mathematics to a natural forest is to change the forest from a natural and thus seemingly "disordered" state to a neat state of mathematics. Practical goals encourage the application of mathematical utilitarianism to forest management, and mathematics creates a geometrically clean and perfect form, as an external sign of good forest management; Meanwhile, this geometrically perfect forest state provides the proof of good forest management.

A classic example of afforestation during this period is the normal forest (Normal Forest), also known as standard forest or regular forest, which is based on the relationship between birth rate, death rate and growth rate, assuming that if the utilization rate does not exceed the regeneration rate, the total resources will not be consumed. The logic behind this is: forests are predictable and controllable. This classical forest management paradigm treats rapidly changing nature as deterministic items operating following predictable trajectories in an constant environment. In this approach, afforestation is based on control of natural processes, with forest management tending towards a 'canonical' distribution of age or diameter grade. Therefore, afforestation is often beneficial for one or a few species, depending on specific characteristics such as productivity, growth rate, quality and quantity of wood production, germination capacity, etc. As a traditional afforestation and management, it aims to predict the rate of renewal and the constant production of marketable wood, and has actually transformed complex ecosystems into simplified systems.

3.2 Laboratory forests

The birth of the forest school and the spread of forest science led to the disappearance of the last remnant of the primeval forest, which ironically seems to run counter to the good purpose of forest management. In Germany, natural forests were replaced by geometric single plantations, driven by school spreading ideas. The goal of forest management is to pursue neat, uniform woodland and provide high yields of wood. Extensive afforestation based on large-area logging of single trees was replaced by intensive afforestation based on clear or unified logging. This form of afforestation was considered economic and rational by the people at that time. Traditional and empirical forms of afforestation have been abandoned, and the collective and intensive management with the state as the main body has become a new form.

Although geometrical, highly consistent forests were designed for easy management and harvesting, they soon became a powerful aesthetic concept. In many parts of Germany and its scientific forestry, well-managed forests show a neat and tidy visual feature. The forest can also be inspected as the commander reviews the troops in a parade, and if the ranger's inspected area is not cleaned neatly enough, it will be punished as a soldier is not dressed or unable to keep up with the rhythm. The order on the surface needs to cut down all the undertrees, and the fallen trees and branches must be gathered and pulled away. Any unapproved interference, whether from the fire or from the local people, was considered as a potential threat to the management regime. The more identical the forests are, the more likely centralized management is possible.

The forest becomes subjects in the laboratory by controlling variables to achieve the desired results. Laboratory chemistry of forests provide a financial benefit. The close attention to the middle-age growth rate of simple forest life and the reliable knowledge of wood growth allow forestry officials to accurately calculate the turning point of the value of new trees (minus the annual cost of early cutting and replanting) over the original year of tree growth. Of course, this precise calculation is the result of a comparison between the same unit of timber used and the same market price.

In a newly designed, artificially controlled environment, such as facilitating generalized surveys of forests by senior forestry officials, facilitating monitoring and logging under centralized long-term plans, providing stable, consistent commodity timber to eliminate a major factor of fiscal revenue instability, and creating a clear natural zone for easier manipulation and testing.

Of course, the utopian dream of scientific forestry is only the internal logic of its technology, which is simply impossible to achieve. Forests are reduced to trees, and trees become commodities that can provide economic output value, so forestry science regards forests not only as experimental objects, but also as machines that produce commodities. Complex things and complex processes are cut apart. In a short period of time, simplified experiments to transform forests into commercial products were very successful. If considering that a single tree species takes 80 years to mature, then this is undoubtedly a little longer than the short term. The production capacity of new forests changes the trend of declining domestic wood supply, providing more similar wood and useful wood fiber, improving the economic returns of woodland, and shortening the cycle of crop rotation. Forests have become "production machines for single commodities" and this high degree of simplification makes German forestry science a sophisticated technical and commercial norm that could be codified and taught. The basic condition of precision is to exclude the effects of all factors other than the yield of an artificially selected tree species, and the cost of growth and logging, or to assume that they are always unchanged.

But both natural and human factors do this. The existing topography, unpredictable fires, storms, blight, climate changes, numbers of pests, and diseases all hinder the efforts of forestry officials and affect the forests. In addition, there are insurmountable difficulties in guarding large areas of forests. People living near the forest continue to graze, stealing wood and ignition wood, burning charcoal, and continuing to use the forest through other means, which prevent the management plan of forestry officials from being truly realized. Although, like all utopian schemes, they are far from getting there, it is important that they partly succeed in putting their design marks on the forest that actually exists.

Throughout the 19th century, the principles of scientific forestry were applied strictly or flexibly to many large forests in Germany. Norway spruce has become the dominant tree species in commercial forests because of its strong material, rapid growth, and high wood prices. The Norway spruce was originally used as a replanting tree species to restore the overdeveloped mixed woods, but the first round of planting brought good commercial benefits, so few people tried to return to the mixed woods. For farmers, a single tree forest is a disaster, because in the past, they could graze and have access to all kinds of food, raw materials and medicines, but now this right is completely deprived. In the past, at least three-quarters of the diverse forests were broad-leaved (deciduous), but now they are mostly coniferous, with few or even single species, mainly Norway spruce and Scottish pines. But after the second round of conifer planting, the negative ecological effects of a single tree species appeared."It took a century (negative effects) to become clear. Many groves of a single tree species grew very well in the first round, but showed an amazing degradation in the second round. The reasons for this phenomenon are complex, and only a simplified explanation can be given here,..... In this way, the entire cycle of nutrients is out of the norm, and eventually even almost stop..... In any case, a single spruce forest reduces one to two woodland grades (used to distinguish the different quality levels of wood). This means losing from 20% to 30% of the production volume."

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