MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

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Faculty of Design

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BACHELOR'S THESIS

on the topic:

Illustrating and designing a book on the origin and development of carbon

Performed by: a student of the BED-20 group

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ABSTRACT

"Carbon emission" and "carbon neutrality are hot topics in today's society.With the emphasis on energy conservation, emission reduction and environmental protection all over the world, more and more countries have made the promise of "peak carbon dioxide emissions" and "carbon neutrality".Under this background, China has included "carbon emission" in the assessment of local political achievements.China's high-carbon industry has large carbon emissions and serious pollution, accounting for more than half of China's total carbon emissions.The goal of "peak carbon dioxide emissions" and "carbon neutrality" cannot be achieved without the low-carbon transformation of high-carbon industries, which can effectively promote the high-quality development of China's economy.

This paper focuses on the hot spots of "carbon emission" and "carbon neutrality", combines with book design and visual design language, and shows them by designing books in kind, so as to achieve the purpose of spreading environmental protection and low-carbon life.The design is based on some important events in the development history of human society and made into multi-layer paper-cut pages, which convey the idea of low carbon and environmental protection around the theme of "Taking Carbon as the View", and call on people to devote themselves to protecting the environment, protecting the homeland on which human beings depend, and leaving a healthy and beautiful living environment for future generations.

By exploring the relevant data of "carbon emission" and "carbon neutrality", this paper analyzes the pollution that needs to be presented, and presents it in the form of paper-cut hollowing out, which gives readers a different visual experience, enables readers to understand and feel the source and development history of "carbon emission" more deeply, and makes readers realize the seriousness of pollution.Combine environmental protection with three-dimensional books to show a unique reading form.

Key words：Carbon emissions; Book design; pop up book ; Wenchuang design

Content

INTRODUCTION

Relevance of the study:"Carbon is the only way to observe" is a homonym of the original China idiom "Amazing". The original meaning of "amazing" is that during the Spring and Autumn Period, Ji Zha of Wu enjoyed all kinds of music and dances in Lu, and when he saw the music and dances in Shun, he was very impressed, saying that it was enough to see here, so he didn't have to watch other music and dances. The latter refers to praising what you see as extremely good and unparalleled. The word "carbon" is carbon dioxide, and the stop word is intended to stop. The theme is intended to draw people's attention to the severe harm of excessive carbon dioxide emissions to the natural environment, so that people can see and pay attention to this situation and take reasonable measures to adapt to nature, protect the natural environment and reduce pollution caused by excessive carbon emissions.

The purpose of the research: Adhere to the coordinated development system of ecological priority and whole life cycle, work hard on resource development and environmental protection, adhere to clean and low carbon, and form a new situation of harmonious symbiosis and mutual benefit in ecological integration and development. Based on the above task requirements, books and works are designed to implement the environmental protection idea, effectively implement the green and low-carbon strategy into specific decision-making and deployment, policy formulation, lifestyle and behavior habits, develop clean production, build a green and clean energy system, make resource-saving and environment-friendly become the mainstream production and lifestyle, promote the common development of enterprises and society, and contribute wisdom and strength to building a better earth home.

Research Objectives:

Analyze the reasons for the current low-carbon emission reduction task.

Analyze the harm of carbon emissions to nature.

Analyze the history of carbon emissions.

Find important historical events in the progress of human society.

Design and make paper-cut pages.

The research subject (theme) is protect the environment and maintain the sustainable development of ecology.

The object (focus) of the research is Show the history of carbon dioxide emission in the style of paper-cutting.

Research methods.This series design includes book design, paper-cut page design and illustration design. It mainly shows that it advocates a green and low-carbon production and life style, establishes and improves an ecological cultural system based on ecological values, and establishes ecological values of respecting nature, conforming to nature and protecting nature. In the early stage of design, computers are used to draw and complete the main electronic draft design, and then make the layout of physical objects and booths in the later stage.

Elements of scientific novelty. Is to make people pay attention to reducing carbon dioxide emissions. Fresh, green, natural and healthy nature is an environment that is more acceptable to readers. Low-carbon environmental protection and the fetters of beautiful nature are important conditions for the harmonious development of human beings and nature.

Practical significance.The advocacy of environmental protection enables human beings to consciously protect natural resources and make rational use of them to prevent the natural environment from being polluted and destroyed; Comprehensive treatment should be done to the polluted and destroyed environment to create an environment suitable for human life and work.

Structure and volume of the thesis. The bachelor's thesis consists of an introduction, three chapters, conclusions to each chapter and general conclusions, a list of used sources of 32 items and appendices (4 pages). The work contains 35 drawings. The results of the research are presented on 54 pages.

Chapter I
Introduction

1.1 Topic selection and research background

As General Secretary Xi Jinping has pointed out, " Promoting carbon peak and carbon neutrality is a major strategic decision made by the CPC Central Committee after careful consideration. It is a solemn commitment to the international community. It is also an inherent requirement for promoting the transformation and upgrading of economic structure, forming competitive advantages in green and low-carbon industries, and realizing high-quality development."The Opinions of the CPC Central Committee and The State Council on Comprehensively Promoting the Construction of a Beautiful China make it clear that we will actively and steadily promote carbon peak and carbon neutrality.[1]

On April 29,2024, the 2024 Carbon Summit carbon Neutral Green Development Forum was held in Beijing. BBS to "to carry out the double carbon action, the construction of beautiful China" as the theme, the government departments, enterprises, experts and scholars, the guests in-depth exchange discussion, sharing experience, to accelerate the development way green low carbon transformation, with high quality ecological environment support high quality development, build consensus together, create a good atmosphere. The meeting personnel said: they will fully, accurately and fully implement the new development concept, actively serve the "two-carbon" strategy, vigorously promote the green and low-carbon transformation, inject new momentum and shape new advantages for high-quality development.

[1]Zhang Xuting. Book form design and innovation research [D]. Shandong Institute of Arts and Crafts, 2024.

1.2 Introduction

"'Carbon' is the observation" is a homonym for the original Chinese idiom "breathtaking". The original meaning of "breathtaking" is that in the Spring and Autumn Period, when Jiza of the State of Wu admired him, saying that it was enough to see this, but not other music and dance; and the praise was extremely good and unparalleled. The word "carbon neutral", as its name implies, means carbon, that is, carbon dioxide, while "neutral" means neutralization and "harmony" means reaching balance. This theme aims to arouse people's attention to the serious harm caused by excessive carbon emissions to the natural environment, and urge people to face up to and pay attention to this situation, so as to take reasonable measures to conform to the laws of nature, protect the natural environment and reduce the pollution caused by excessive carbon emissions.

In the current global context, carbon neutrality is not only a hot topic of environmental protection, but also a common challenge for all countries in the world. With the acceleration of industrialization, the demand for energy is increasing day by day, which leads to a sharp rise in the emissions of greenhouse gases such as carbon dioxide. This not only accelerates the global warming, but also causes many environmental problems, such as melting glaciers, rising sea levels and frequent extreme weather events.

The concept of carbon neutrality provides us with ideas to deal with this challenge. Its core lies in minimizing the carbon dioxide emissions generated by human activities by means of energy conservation and emission reduction, afforestation and the development of renewable energy, and at the same time, achieving the balance between carbon dioxide emissions and absorption through the absorption of natural ecosystems. In this way, it can not only meet the development needs of human beings, but also protect the ecological

environment of the earth and realize the harmonious symbiosis between man and nature.

In order to achieve the goal of carbon neutrality, countries have introduced relevant policies to encourage enterprises and individuals to take energy-saving and emission-reduction measures. For example, many countries make carbon emission rights a commodity by implementing carbon trading system, thus promoting carbon emission reduction through market mechanism. In addition, countries are actively promoting the use of renewable energy, such as solar energy and wind energy, in order to reduce dependence on fossil energy and reduce carbon emissions.

In addition to government efforts, all sectors of society are also actively participating in carbon neutral actions. Many enterprises begin to pay attention to their own carbon emissions and take energy-saving and emission-reduction measures to reduce carbon emissions in the production process. At the same time, some environmental protection organizations are also carrying out afforestation and other activities to increase the coverage of green vegetation and improve the carbon absorption capacity of the ecosystem.

In a word, carbon neutrality is a global environmental protection issue, which requires the joint efforts and participation of the whole society. By taking a series of effective measures, we can gradually reduce carbon emissions, protect the earth's ecological environment, and realize the harmonious coexistence between human beings and nature. In this process, each of us can contribute to the goal of carbon neutrality and make our planet more beautiful and livable.

In the long course of human activities, our relationship with nature has become increasingly close, and carbon emission is a link that cannot be ignored. Since the first ray of light was lit by human beings in ancient times, we have gradually explored in the long history of natural evolution. However, since the first industrial revolution, human carbon emissions have continued to increase,

which undoubtedly brought a heavy burden to the earth.

The industrial revolution is an epoch-making change in human history, which makes human use natural resources more efficiently and promotes social progress. However, this progress is not without cost. With the process of industrialization, the exploitation and consumption of natural resources are increasing, resulting in the discharge of a large number of pollutants. These pollutants not only pose a threat to human health, but also have a serious impact on the ecological balance of nature.

Nature has a certain purification ability, which can absorb and decompose pollutants to a certain extent. However, this purification ability is not infinite. When the speed of pollution exceeds the speed of natural purification, nature will not be able to bear this pressure, which will lead to the destruction of ecological balance. In the long run, this kind of destruction will cause irreversible damage to the earth.

The earth is our home, which breeds life and nourishes everything. However, now our home is facing unprecedented challenges. If we don't take action, the future of the earth will be worrying. Therefore, protecting the natural environment and reducing carbon emissions have become our unshirkable mission.

How to reduce carbon emissions? We should start from ourselves and develop good living habits. For example, we can choose low-carbon travel modes such as public transportation or cycling to reduce the use of private cars; We can also save water and electricity and avoid waste; We can also actively participate in environmental protection activities, publicize environmental protection concepts, and let more people join the environmental protection cause.

Governments and enterprises should also shoulder their due responsibilities. The government can introduce relevant policies to encourage and support the development of low-carbon industries; Enterprises can actively adopt environmental protection technologies to reduce carbon emissions in the

production process. Only with the joint efforts of the government, enterprises and individuals can we effectively reduce carbon emissions and protect our common home.

It is our responsibility to reduce carbon emissions and protect the natural environment. Let's go hand in hand, start from ourselves and contribute to the future of the earth. Only in this way can we ensure that our home will always be full of vigor and vitality, so that our future generations can continue to thrive on this land.

1.2.1 Purpose and significance of the topic selection

Green development is not only the background of high-quality development of the country, society and even individuals, but also a concept of sustainable development pursued by all countries in the world today. With the increasingly serious problem of global warming, countries have put forward emission reduction targets in order to achieve sustainable development. In this context, China has also actively responded to the call of global green development, formulated and implemented the goals of peak carbon dioxide emissions and carbon neutrality, showing the responsibility of a big country.[2]

In 2020, China put forward the goal of "peak carbon dioxide emissions" and "carbon neutrality", that is, to achieve the peak of carbon emissions by 2030 and carbon neutrality by 2060. This strategic goal has been widely concerned and positively evaluated by the international community. As the largest developing country in the world, China faces many challenges and difficulties in the process of achieving this goal. However, the government of China is determined to actively promote green development in order to achieve sustainable economic and social development.

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[2]Chen Weiming. Shenda Group: Grasping the low-carbon trend to help develop the "full of green" with high quality [J]. China reports, 2024.

In the process of realizing the goal of "double carbon", China is accelerating the transformation of green and low-carbon energy. China vigorously develops clean energy, such as renewable energy such as wind energy and solar energy, and reduces its dependence on fossil energy; China has strengthened the rectification of industries with high pollution and energy consumption, and promoted the optimization and upgrading of industrial structure. These measures not only help to reduce carbon emissions, but also promote the green transformation of the economy.

China also pays attention to popularizing the concept of green development in the whole society. The government encourages enterprises and individuals to actively participate in green development by formulating relevant policies and regulations. China has also strengthened cooperation and exchanges with the international community to jointly meet the challenge of global warming.

Green development is an important background for China's high-quality development and an inevitable choice for China to achieve sustainable development. On the road to peak carbon dioxide emissions and carbon neutrality, China will continue to unswervingly promote green development and make positive contributions to building a community of human destiny.

According to statistics, China has achieved remarkable results in achieving the green development goals. According to the latest data, the installed capacity and power generation of renewable energy in China are among the highest in the world. China has also made positive progress in energy conservation and emission reduction, and the intensity of carbon emission has decreased year by year. These achievements can not be achieved without the firm determination of the China government and the joint efforts of the whole society.

In the future, China will continue to deepen the concept of green development and promote the all-round green transformation of its economy and society. By strengthening scientific and technological innovation, optimizing industrial structure and improving policy system, China will further enhance the

level of green development and make greater contributions to the global green development. China will also actively cooperate and exchange with the international community to jointly promote the global green development process.

On the road of green development, China will constantly sum up experience and innovate practice, and explore the road of green development in line with its own national conditions. It is believed that in the near future, China will achieve the goal of peak carbon dioxide emissions and carbon neutrality, and make important contributions to the global green development and sustainable development.

After reading related works, xi jinping stressed: general secretary of the ecological environment is the major political issues of the party's mission purpose, play pollution control battle tough time, task, difficult, is a big battle, battle, battle, must strengthen the leadership of the party, resolutely shoulder the politics of ecological civilization construction and ecological environment protection. Green is an important manifestation of the people's pursuit of a better life and the top priority of high-quality national economic development. To strengthen ecological progress, China needs to not only accelerate the optimization of the industrial and energy mix, and advocate green and low-carbon ways of production and life. At the same time, China needs to speed up the establishment and improvement of an ecological and cultural system based on ecological values, and establish the ecological values of respecting, conforming to and protecting nature.

We should adhere to the coordinated development system that gives priority to ecology and covers the whole life cycle, work hard in resource development and environmental protection, adhere to clean and low-carbon development, and form a new situation of ecological integration and development featuring harmonious coexistence and mutual benefit. Based on the above task requirements, design books, to implement environmental ideas, to

implement the green low carbon strategy to the specific policy decisions, policies, lifestyle and behavior, the development of clean production, green clean energy system construction, make resource conservation, environmental friendly become the mainstream production way of life, promote the common development of enterprises and society, the harmonious coexistence of man and nature, to build a better earth home contribution wisdom and strength.

This topic is designed with the theme of human carbon emission history and dual-carbon goal, to call on more people to pay attention to and participate in low-carbon emission reduction actions to maintain the earth's natural environment.

1.2.2 Brief introduction of the topic selection and content

The theme of this paper is "carbon footprint"-examining the progress of human beings and society from a historical perspective and showing a series of landmark events in the form of book design. These events not only reveal the rapid development of human society, but also profoundly reflect the historical process of human environmental pollution, such as the first industrial revolution, the second industrial revolution, the third industrial revolution, and the intertwined relationship between some symbolic inventions and the natural environment.

Since ancient times, carbon has been accompanied by the evolution of human civilization. In ancient times, people obtained heat energy by burning wood, and carbon rose to the sky in the form of smoke. However, with the rise of the industrial revolution, the way humans use carbon has undergone earth-shaking changes.

The first industrial revolution, the birth of the steam engine marked that mankind entered the era of mechanization. The large-scale exploitation and utilization of coal provides a steady stream of power for industrial production,

and also releases a lot of carbon into the atmosphere. The book design of this period may use the texture and color of coal to show the prosperity of the industrial revolution and the environmental cost behind it.

Then, the second industrial revolution brought about the wide application of electricity and oil. The rise of new industries such as power plants, automobiles and airplanes has made carbon emissions more serious. The book design of this period may use elements such as steel and wires to depict the glory of industrial civilization and the intensification of environmental pollution.

Entering the third industrial revolution, the vigorous development of emerging fields such as information technology and biotechnology has brought unprecedented changes to human society. However, even at this stage, the problem of carbon emission is still serious. Although digitalization and intelligence have reduced the carbon emissions of some traditional industries, the production and transportation of electronic products will still produce a large number of carbon footprints. The book design in this period may use the elements of electronic products to show the game between human scientific and technological progress and environmental protection.

In addition to the industrial revolution and the development of science and technology, some landmark inventions have also had a profound impact on the natural environment. For example, the invention of plastics has greatly changed the way of life of human beings, but the mass production of plastic waste has also brought great pressure to the environment. Book design can warn people to pay attention to plastic pollution by depicting the scene of plastic waste accumulation.

To sum up, looking at the carbon footprint from a historical perspective, we can easily find that there are inextricably linked between the progress of human society and environmental pollution. Through the form of book design, we can show these landmark events more intuitively, guide people to think deeply about the relationship between human beings and nature, and jointly seek the road of

sustainable development.

Summary of the chapter 1

1. Research background of carbon emissions
2. Introduction of carbon emission words.
3. Research significance of low carbon.

Chapter II

2.1 On carbon emissions

2.1.1 Low-carbon concept

Words such as "low carbon" and "carbon neutral" have become popular terms in China and abroad in recent years. The word "carbon" here mainly refers to carbon dioxide gas.

Since the beginning of the industrial revolution, mankind has embarked on the road of technological progress and industrial growth. However, these activities, especially the extensive use of coal and other fossil fuels, have had a far-reaching impact on the atmospheric composition of our planet. A notable consequence is the sharp increase in the concentration of carbon dioxide gas in the atmosphere, which has triggered a global climate change characterized by climate warming.

The greenhouse effect is a natural phenomenon that keeps the earth's temperature within the habitable range, and human activities have intensified the greenhouse effect. Meteorologists explained that gases such as water vapor, ozone and carbon dioxide allow short-wave radiation from the sun to pass through, causing the earth's surface to heat up. These gases prevent the earth's surface from emitting long-wave radiation into outer space, thus trapping heat in the atmosphere. The greenhouse effect of gases such as carbon dioxide is the reason why it is called greenhouse gas.

The increase of carbon dioxide level in the atmosphere is the result of various human activities, including burning fossil fuels to produce energy, deforestation and industrial processes. These activities release a large amount of carbon dioxide into the atmosphere, which leads to the accumulation of this gas and leads to global warming.

The impact of climate warming is extensive and multifaceted. It leads to temperature rise, changes in precipitation patterns and melting of polar ice sheets. These changes have had a great impact on ecosystem, agriculture and human health, and some areas have experienced more frequent extreme weather events, such as heat waves, droughts and floods.

In order to deal with this urgent problem, people pay more and more attention to mitigating climate change by reducing greenhouse gas emissions and promoting sustainable practices. Policies such as renewable energy initiative, carbon emission reduction targets and sustainable development targets have been implemented to address the root causes of climate change.

Human activities lead to the increase of carbon dioxide content in the atmosphere, which has a far-reaching impact on the climate of our earth. We must take action to mitigate the impact of climate change and protect the sustainability of the earth for future generations.

In addition to carbon dioxide, other gases include methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Carbon dioxide has large global emissions, high warming effect and long life cycle, which is the greenhouse gas with the greatest impact on climate change. Oak Ridge laboratory research report shows that since 1750, the global cumulative emissions of more than 1 trillion tons of carbon dioxide, of which developed countries account for about 80%.

Low carbon aims to advocate an economic model based on low energy consumption, low pollution and low emissions, and reduce harmful gas emissions.

2.1.2 Low-carbon connotation

Low carbon connotation is: low carbon society, low carbon economy, low carbon production, low carbon consumption, low carbon life and low carbon tourism.

Low-carbon society: By creating low-carbon life, developing low-carbon economy, cultivating the low-carbon culture concept of sustainable development and environmental civilization, form an "olive" fair society with low-carbon consumption consciousness.

Low carbon economy: low carbon economy refers to the concept of sustainable development, through technological innovation, system innovation, industrial transformation, new energy development, as far as possible to reduce coal, oil and other high carbon energy consumption, reduce greenhouse gas emissions, achieve economic and social development and ecological environment protection win-win a form of economic development.

Low-carbon production: Low-carbon production aims to reduce greenhouse gas emissions, and to build a production system based on low energy consumption and low pollution, including low-carbon energy system, low-carbon technology and low-carbon industrial system.

Low-carbon consumption: Economically speaking, consumption includes both productive consumption and non-productive consumption. Production consumption refers to the consumption of means of production and productive labor such as tools, raw materials and fuels in the production process. The main part of non-productive consumption is personal consumption, which refers to various material data and spiritual products consumed by people to meet personal needs; the other part is the consumption of material data in the daily work by non-production departments, including organs, organizations and institutions. Therefore, it should be the common responsibility of the whole society to promote the transformation from "high carbon consumption mode" to

"low carbon consumption mode". Only in this way can we help to maximize the interests of the state, enterprises and citizens.

Low carbon life: Low carbon life refers to the lifestyle of low energy consumption, low consumption and low expenditure, to reduce carbon dioxide emissions. Mainly from the power saving, solar term and recycling of three links to change the way of life.

Low-carbon tourism: In tourism activities, tourists try to reduce carbon dioxide emissions. That is, green travel based on low energy consumption and low pollution advocates reducing carbon footprint and carbon dioxide emissions as far as possible in the process of travel, which is also a deep expression of environmental protection tourism. It includes relevant environmentally friendly and low-carbon policies and low-carbon travel routes introduced by governments and travel agencies, carrying environmentally friendly luggage for individuals, staying in environmentally friendly hotels, choosing vehicles with low carbon dioxide emissions, and even cycling and hiking.

2.1.3 Low-carbon products

Wind power generation: the kinetic energy of the wind into mechanical kinetic energy, and then the mechanical energy into electric kinetic energy. Wind energy as a clean renewable energy, more and more attention by countries in the world. Its energy is huge, the global wind energy is about 2.7410 ^ 9MW, of which the available wind energy is 210 ^ 7MW, 10 times larger than the total amount of water energy that can be developed on the earth.

Solar power generation: there are two basic ways of solar power generation. One is to convert solar radiation energy into heat energy, and then convert heat energy into electricity according to a certain way of electricity generation, namely solar thermal power generation. The other is to convert

sunlight directly into electricity through photoelectric devices, namely solar solar power generation.

Tidal energy collection: the water level difference is potential energy, the speed of the tidal trend is kinetic energy, both energy can be used, is a renewable energy. Tidal phenomena caused by changes in the moon's gravity cause the sea plane to periodically rise and fall periodically. This energy is a green and pollution-free energy.

New energy vehicles: New energy vehicles refers to the use of unconventional vehicle fuel as the power source (or the use of conventional vehicle fuel, but the use of new vehicle power device), comprehensive vehicle power control and drive of advanced technology, the formation of advanced technical principles, with new technology, new structure of the vehicle. New energy vehicles include: hybrid electric vehicles (HEV), fuel cell vehicles (FCEV), pure electric vehicles (BEV), hydrogen engine vehicles, gas vehicles, alcohol ether vehicles and so on.

2.2 Research status at home and abroad

2.2.1 Status of domestic research

Zhang Xuting. In the study of book form design and innovation, it is put forward that the binding of Chinese traditional books is very representative in the Chinese traditional creations, which can represent the Chinese porcelain, architecture and clothing, just like the traditional Chinese style and form. Since the tang and song dynasty engraving technology popularization, the form of books in China are based on paper and printing as material, this to a certain extent for the design of books provides a paradigm can follow, such as designers like Jane book design terms: cover, four seals, ring lining, heaven, feet, lock, paper, etc., it is under this paradigm for a long time. Nearly 20 years, however, digital technology overturned the publishing industry, the limitations of

traditional paper books gradually highlighted, paper and printing is no longer the only books material basis, paper books sales gradually decline, the publishing industry faces huge changes and challenges, traditional books form is facing the development of problems. In this context, the innovation of book form design has become more important.[3]

In the study of the design form of three-dimensional books, Jin Yiyan put forward that: in the new media era, readers' choice of reading shows a diversified trend. Three-dimensional books use paper art to create three-dimensional space and interactive forms, presenting novel and interesting book forms, and bringing readers a unique reading experience. At present, the three-dimensional book market has a good development momentum and the original works are growing rapidly, but there are still serious homogenization and readers' needs are not fully explored. Three-dimensional books should actively explore the innovative strategies of design forms, so as to adapt to the diversified and personalized reading psychology and reading purport of readers, so that three-dimensional books can explore the sustainable development path in a more consistent with the contemporary context. This paper focuses on the study of design form at the micro level of "design morphology", takes three-dimensional books as the research object, summarizes the multi-dimensional form expression of three-dimensional books, clarifies its unique internal composition, and then explores the strategy of design form innovation.[4]

Book design is an art, and it is a whole visual communication process that organically combines elements such as content, layout and binding. Excellent book design can not only attract readers' interest in reading, but also create imagination and aesthetic space for readers, thus improving people's artistic aesthetics invisibly. Since the reform and opening up, relying on the

[3]Zhang xuting. research on book form design and innovation [D]. Shandong institute of arts and crafts, 2024.
[4]Jin yiyan. research on the design form of three-dimensional books [D]. Zhejiang gongshang university, 2023.

development of modern publishing industry, book binding in China has begun to pay attention to the craft of book cover on the basis of traditional book cover packaging, and has a certain design consciousness and aesthetic pursuit. The book design art working committee of China Publishing Association calls this change of design concept "from binding to book design".[5]

Under the background that the reading experience standard is escalating and the paper media industry is declining, the emotional interactive book binding design is taken as the core point to break through the bottleneck of the industry development, and combined with the modern book binding concept, the traditional design standard that only focuses on words, typesetting and images in the past is broken to carry out innovative design. In the design process, we pay more attention to the spiritual and cultural content of books, adhere to the principles of unity of content and form, moderate design and layout, and combination of theory and practice. Through the exploration of design methods such as plane grid system, text typesetting system and color system, we creatively recombine static texts and dynamic images to provide innovative book reading experience, with a view to creating more appealing and attractive innovative design schemes for modern book binding design.[6]

2.2.2 Status of foreign research

Digital picture books havebeen widely used in chidren's reading, and the constructon of immersive interactivepicture book experience design model for children's education is currently a subiect worthy ofstudy.Background: Flow theory is a psychological concept that emphasizes the experience of being immersed in something and iswidely used in game design and education. In flow theory, there are three prerequisites for flow experiences: clear goals.challenge

[5]Qiu Wuxia. Aesthetic evolution of book design [N]. China Culture News, 2024-04-21(001).
[6]Hu Shinuo. Emotional interactive book binding design [D]. Hunan University of Technology, 2023.

and skill balance, and timely feedback, lt is hoped that the precondition ofgenerating flow can be applied to children'seducational picture books so that children can be continuously aroused when experiencing picure books, and that the audiovisual and interactive picture books can increase the hands-on opportunities for children aged 3-6, so as to promote children'sdevelopment.[7]

2.3 Design and positioning

The design concept of "carbon" profoundly reflects the intricate relationship between the development of human society and the development of natural resources. This proves the intricate relationship between progress and environment, which is often full of challenges and complexity.

Throughout the ages, human activities have led to a steady stream of carbon pollution and shaped a unique historical narrative. This narrative is well reflected in the design of "Carbon", which uses paper-cutting, painting and calligraphy to create the visual expression of this historical track. These artistic elements not only enhance the visual appeal of design, but also strongly remind people of the impact of human activities on the environment.

It is not only aesthetic to integrate these traditional art forms into the design; It also has a deeper purpose. By integrating these elements, the design aims to arouse readers' sense of mission and responsibility. It encourages them to reflect on their carbon footprint and consider how their actions (big or small) will affect the overall carbon emissions that cause climate change.

The design of carbon strives to make the concepts of low-carbon development, low-carbon life and sustainable development more attractive and readable. By presenting these ideas in a visually attractive and culturally relevant way, it hopes to inspire people to adopt a more environmentally friendly lifestyle. The use of traditional art forms is helpful to bridge the gap

[7] Journal | [J] 人間工学. Volume 57 , Issue Supplement-2 .

between ancient wisdom and modern sustainable development practice, make information more accessible and resonate with a wider audience.

The design of "carbon" is a powerful tool to promote environmental awareness and action. It not only shows the beauty and depth of traditional art forms, but also uses their power to convey important information about sustainable development and climate change. By making these ideas more attractive and readable, it encourages individuals to take action and contribute to global efforts to achieve a more sustainable future.

Summary of the chapter 2

1. About carbon emissions
2. Research status at home and abroad
3. Design orientatio

Chapter III

3.1 Design process and results

3.1.1 Logo design and title font design

When I first designed the logo, I thought of the fusion of carbon dioxide in English and nature, a straightforward theme: carbon emissions. In order to make the carbon dioxide letter to enlarge the C letter to a suitable size, give the viewer a visual sense of the theme. The Logo design adds natural elements: three leaves, the roots of the leaves facing the middle of the carbon dioxide letter to express the carbon dioxide on the growth of the plant, the leaves are mainly green and then do gradual transition (see Figure 3-1).

Theme font design in the "carbon to check" four words for the same type of stroke design, The word "carbon", as its literal meaning implies, always reminds people of deep black. In the initial design, black naturally became the dominant color. I skillfully use black, and by adjusting its size and position, the four words are more harmonious and unified visually.

In the design process, I always uphold the respect and continuation of the black tone. In order to make the overall design more layered and energetic, I added more diversified color elements in the third design version. The addition of these colors not only enriches the visual experience, but also injects new vitality into the theme font.

In the third edition design, I tried to blend black with other colors skillfully. Through contrast and harmony, black and other colors set off each other, and jointly create a stable and dynamic visual effect. I also pay attention to the distribution and balance of colors in the overall design to ensure that each element can be fully displayed.

In order to reflect the theme font, I incorporated more dynamic elements into the design. These elements not only make the font itself more dynamic, but also attract the attention of the audience and guide them to explore the

connotation of design.

Through this series of innovations and attempts, I successfully integrated the theme of the word "carbon" into the design, making the whole work not only have profound cultural connotation, but also full of modernity and fashion. This design is not only a vivid interpretation of the word "carbon", but also a unique expression of design art.

I made full use of black and other color elements in the design process, and through ingenious adjustment and integration, the overall design was more layered and energetic. I also pay attention to the handling of details and the control of the overall style to ensure that the works can perfectly present the connotation and charm contained in the word "carbon".

3.1.2 Sigo design and title font design

The logo is designed to pay people attention to reducing carbon dioxide emissions. Fresh, green, natural and healthy colors are easier to remind readers of the fetters of low carbon, environmental protection and beautiful nature.

The design of the theme character '" carbon" is the view " is more neat, and at the same time, in order to coordinate with the content, all the black forms of expression are selected. The connection between each word is more stable, solid, overall and natural, the design of "for" is hidden in the other three words, so that readers take the initiative to find the word "for", convey low carbon environmental protection to all mankind together "to protect" the natural environment of life needs to start from our human own bit by bit action.

3.2 Paper-cut hollow page design

3.2.1 Ape man found the fire line draft and the effect display

Picture (Figure 3-5) Design performance: ape man found a fire, two apes foraging in the woods, found a bright light, took it in the hand brought the hand

to burn, this is the first time human contact with the flame, know the existence of fire. The background makes a bright red, the foreground tree and ape man are black, before and after contrast. The form of leaves used to be designed, reflecting the damage of fire to nature, leading to the loss of life of plants and grass. According to history, the face of the ancient apes was very similar to that of the monkey, so the two apes were both a monkey face, and they were surprised at the magic fire in their hands.

3.2.2 Ape man use fire line draft and effect display

Since ancient times, early humans began to use fire, a magical natural force. This great progress not only changed the way of life of human beings, but also promoted the progress of human civilization. When people first lit the flame, they used it to drive away the cold, cook food and even drive away wild animals. With the gradual improvement of the understanding and control of fire, human beings gradually got rid of the original bloody lifestyle and learned how to use fire as a natural resource, paving the way for their own development.

As shown in figure 3-6, the flame is particularly eye-catching in the figure. We can clearly see that the vegetation is still full of vitality on both sides of the flame. This fully shows that early humans have mastered the skills of controlling fire and know how to use fire resources on the premise of protecting the natural environment. They learned to use fire in the right place in order to better serve the development of mankind.

At the same time, we can also see that the flowers and plants in the picture have different shapes and are relatively messy in design. This reflects that although human beings have mastered the basic methods of using fire, there are still many shortcomings in the process of using this resource. They have not fully mastered the characteristics of fire, so it is inevitable that some mistakes will occur in the process of using fire.

It is these seemingly small advances that have laid a solid foundation for the rise of human civilization. With the passage of time, human beings have gradually accumulated rich experience and become more and more mature in controlling fire. They learned to use fire to smelt metals, make tools, and even use fire to burn ceramics and other works of art. These innovations not only enrich human life, but also inject powerful impetus into the development of human civilization.

In modern society, fire has become an indispensable part of human life. From home heating to industrial production, from cooking food to lighting, fire is everywhere. At the same time, with the progress of science and technology, the use of fire by human beings has become more efficient and safe. For example, modern fire-fighting technology can effectively control the occurrence and spread of fires and ensure the safety of people's lives and property.

It is an epoch-making milestone that early humans began to use fire. It not only changed the way of life of human beings, but also laid a solid foundation for the progress of human civilization. In the future, we should continue to explore the mystery of fire, give full play to its important role in human life, and contribute more to the prosperity and development of human society.

3.2.3 Steam train line draft and effect display

We have reached the first major stage of social development: the first industrial Revolution. At this time, people invented the steam engine. Large factory production machines were built, and the movement to liberate labor began. Pollution has also been increasing ever then. Humans efficiently use machines to change their own way of life and production. The picture (Figure 2.5) The design of the branches and leaves uses a more artistic form of expression than the first two paintings. The bending of branches and leaves was more natural, showing that people's quality of life was greatly improved after the first Industrial Revolution. People began to enjoy life and used a little time to

create more value. Steam trains flying on the tracks, this is a major upgrade of human transportation, with the use and development of large machinery, chimney smoke is more to the nature. After the first industrial Revolution, the pollution of human society to nature began to increase exponentially. Smoke billowing from the steam train in the center of the picture floats into nature, in contrast to the vibrant trees and leaves in the picture. At this time, human beings have been above the nature, can dominate the renewal of nature.

3.2.4 Steam car line draft and effect display

The following figure (Figure 3-7) is an early batch of steam cars, it is very similar to the steam train, both rely on the steam engine to achieve power, and steam, it needs to burn coal to evaporate steam, this period of human beings have begun to use a lot of coal. The design of the tree in the upper left corner, designed as a tree without a leaf, metaphor that human beings began to have a certain degree of pollution and destruction of nature. The natural environment is changing dramatically due to human activity. As in the picture above (Figure 3-8), the billowing black smoke in the picture floats into nature. In this picture design, an important part of the car is the driver, which gives the reader an unreasonable impression, makes people produce the emotion of doubt, and eventually echo the withered branches. The destruction of the living environment will also lead to the disappearance of the human beings driving the vehicle, making the readers deeply remember this idea.

3.2.5 Factory line draft and effect display of the black smoke manufacturing

In the picture (Figure 3-9) shows a huge factory. The rolling black smoke from tall chimneys is the current situation of the factory after the first industrial Revolution. A large amount of capital built factories to produce machines to replace handicraft production, and the mechanized production changed from this

time to the mainstream production, which made the environmental pollution more serious and rapid. In order to make the picture more concise, only a few chimneys in the design emit black smoke, and I also want to express that human beings should protect the environment and reduce the emission of carbon dioxide and other polluting gases. In the picture (Figure 3-9), you can see the dense square Windows. At that time, such buildings were only available in large factories. This design was convenient for ventilation and lighting, and also made harmful gases more likely to float out of the factory to pollute the environment. The dense square Windows are designed to tighten the nerves and feel very anxious. The black smoke and pollution produced by factories are also the birthplace of natural environmental anxiety. At this time, the harmful gases such as carbon dioxide emitted by factories built for human activities have seriously harmed the natural environment.

3.2.6 Line draft and effect display of internal combustion engine vehicles and aircraft

With the wave of the second industrial revolution sweeping, human society has entered a new era of electrification. In this historic turning point, countless innovations have sprung up, among which the emergence of electrical equipment and the invention of internal combustion engine are particularly eye-catching. These revolutionary technological advances have not only greatly promoted the development of social productive forces, but also profoundly changed people's lifestyles and ways of thinking.

The birth of internal combustion engine is a major breakthrough in the history of industrial development. This device, which can directly convert chemical energy into mechanical energy, has quickly won people's favor because of its high efficiency and convenience. The wide application of internal combustion engines has greatly promoted the rapid development of transportation and industrial production. With the popularity of automobiles,

airplanes and other means of transportation, the demand for fuels such as oil and natural gas has reached an unprecedented height.

Under the influence of the second industrial revolution, not only the means of transportation have undergone earth-shaking changes, but also the face of war has taken on a new look. As shown in Figure 3-10, three planes are soaring in the sky and three tanks are galloping on the ground. They all show a serious and tense atmosphere in a unified and coordinated manner. This picture is a vivid portrayal of the vigorous development of deadly weapons manufacturing industry after the second industrial revolution.

With the continuous progress of science and technology, the lethality of deadly weapons is also increasing. From pistols and rifles to heavy tanks and bombers, all kinds of new weapons emerge one after another, which makes the cruelty of war escalate. This trend reached its peak in the fifty years after the outbreak of World War I. During this period, countries all over the world have stepped up the arms race and competed to develop more advanced weapons technology in order to gain an advantage in the war.

Although the second industrial revolution brought many unprecedented scientific and technological progress and material wealth, it also brought a series of severe problems and challenges. Problems such as environmental pollution, resource depletion and social injustice are increasingly prominent, which pose a serious threat to the sustainable development of human society. While enjoying the convenience brought by scientific and technological progress, we should also deeply reflect on its negative effects and actively explore the road of sustainable development.

The second industrial revolution not only promoted the wide application of electrical equipment and the invention of internal combustion engine, but also profoundly changed the face of war and the development track of human society. While enjoying the convenience brought by scientific and technological

progress, we should also pay attention to the problems brought by it and strive to find a balanced and sustainable development path.

3.2.7 Exploration and mining energy line draft and effect display

Since the outbreak of the First World War, the human demand for energy has reached an unprecedented new height. With the advance of the war, countries have invested a lot of resources in the research and development and production of weapons with high lethality, which are powerful enough to cause devastating damage to the natural environment. A shell or a bullet easily deprived innocent lives on the battlefield. In order to meet this growing war demand, human beings have to speed up the development and utilization of natural resources, especially the excavation and use of chemical energy.

In this process, a large number of labor and mechanical equipment are invested in the development of energy resources in order to obtain the needed energy more quickly and efficiently. However, this rapid development and utilization has also brought serious environmental problems. Due to the massive burning of fossil fuels, the emission of carbon dioxide has increased geometrically, which has aggravated the severity of global climate change and environmental pollution.

Workers are also facing great challenges and risks in the process of exploiting chemical energy. They need to go deep underground, face complex geological conditions and potential safety hazards, and carry out arduous exploration and excavation work. These jobs require not only high professional knowledge and skills, but also strong willpower and perseverance.

From the picture (Figure 3-11), we can see that the workers are seriously detecting and tapping the source of chemical energy. They wear heavy protective clothing, helmets and gloves, and hold professional detection instruments and excavation tools to work in a dark underground environment. Despite the difficult working environment, they still maintain a high degree of

concentration and professionalism, and contribute their own strength to the energy needs of mankind.

We also have to face up to the problems brought by this energy development method. With the increasing demand for energy, we must find more sustainable and environmentally friendly ways to use energy to reduce the damage and pollution to the environment. We should also strengthen the protection and rational utilization of energy resources to ensure the sustainable development and future prosperity of mankind.

To sum up, human demand for energy reached an unprecedented height after the First World War, but it also brought serious environmental problems and challenges. We should actively seek solutions to promote sustainable energy development and win-win environmental protection.

3.2.8 Rocket launch line draft and effect display

The third scientific and technological revolution is another major leap in the field of science and technology in the history of human civilization after the steam technology revolution and the revolution of electric power technology. The third scientific and technological revolution is mainly marked by the invention and application of atomic energy, electronic computers, space technology and biological engineering, and involves an information control technology revolution in many fields such as information technology, new energy technology, new material technology, biological technology, space technology and Marine technology. In the picture (Figure 3-12), The picture design launches the rocket, using a simple geometric structure to show the rocket. The rocket breaks through the clouds to explore the universe, bringing new vitality and resources to the human society.

3.2.9 City line draft and effect display under the sunset

The captivating image (Figure 3-13) depicts a human girl in a state of serene tranquility, sitting peacefully as she gazes upon the mellow hues of the sunset. This image, designed with intricate detail, offers a serene oasis within the hustle and bustle of the urban jungle. Positioned beneath the sheltering branches of trees, perched atop a verdant park, the girl's gaze is fixed upon the distant horizon, where the sun is slowly sinking into the embrace of the evening sky.

The overall design of the picture exudes a sense of peaceful aesthetic, reminding us of the beauty that can be found even in the midst of chaos. It allows the viewer to escape the noise and commotion of daily life, transporting them to a place where time seems to slow down and the present moment becomes all that matters.

The lens in the design is styled in a manner that suggests a cinematic quality, akin to peering through a window into a film. This adds a layer of narrative depth, making us feel as though we are the protagonist in a story, experiencing the same tranquility and wonder as the girl in the picture.

The use of color in the image is particularly noteworthy. The warm tones of the sunset contrast beautifully with the cooler hues of the surrounding environment, creating a visually arresting composition. The subtle shading and lighting effects enhance the three-dimensionality of the scene, making it feel more lifelike and immersive.

Moreover, the choice of setting is also significant. The park, a symbol of nature and tranquility, stands in stark contrast to the bustling cityscape beyond. This juxtaposition underscores the importance of finding moments of peace and solitude even in the midst of a busy and stressful world.

In conclusion, the image (Figure 3-13) is not just a pretty picture; it is a powerful reminder of the importance of finding moments of serenity and

reflection in our daily lives. It invites us to slow down, appreciate the beauty that surrounds us, and relish the present moment. Through its carefully crafted design and narrative depth, it offers a profound and enriching visual experience that leaves a lasting impression on the viewer.

3.2.10 Wind power generation line draft and effect display

Wind power is a renewable and green energy source, and the principle is that the kinetic energy of the wind turns into electricity. The use of wind power generation is very environmentally friendly, and the wind energy accumulation is huge, it is inexhaustible. Wind energy is the best choice for coastal islands, grasslands, mountains and plateaus that are short of water, fuel and poor transportation. The picture design in the picture (Figure 3-14) is the scene designed based on the windmill power generation. The windmill on the hillside gets along harmoniously with the natural environment next to it, and the green energy benefits human beings and is accepted by nature. They are like a beautiful picture scroll. More elements are added to the design to make the design content more vivid, showing that clean and renewable energy is the preferred resource form for mutual benefit between man and nature.

3.2.11 Children's tree planting line draft and effect display

The design depicted in Figure 3-16 is very symbolic, depicting two children planting saplings. This picture is not just a beautiful picture; This is a powerful message that emphasizes the close relationship between human life and the natural world. This reminds us that our existence, growth and survival are inseparable from the health and vitality of the environment.

The child in the design has an innocent face and eager hands, and is the representative of new human life. They are sowing seeds for future generations, not only literally, but also metaphorically. Their actions show that we are all

guardians of the earth and have the responsibility to cultivate and protect the earth for future generations.

The saplings they planted are symbols of new life in nature. They represent the regenerative ability of nature, that is, the ability to grow and thrive even in the face of adversity. The planting behavior itself proves the resilience of nature and reminds people that even the smallest behavior may have a major impact on the larger ecosystem.

This design also emphasizes the key role of ecological environment in human survival and development. This clearly reminds us that without a healthy environment, human life cannot thrive. The air we breathe, the water we drink and the food we eat all come from nature. Therefore, our survival depends on the health and sustainability of our environment.

The design shows that our responsibility to protect the environment starts with daily trifles. This is not just a grand and sweeping gesture; It is about making conscious choices in daily life to minimize our impact on the environment. It is about recycling, reducing waste, saving energy and respecting the natural world.

The design in Figure 3-16 is a powerful symbol of the interconnection between human life and the natural world. It reminds us that our survival and development depend on the health and vitality of our environment. For future generations, we have the responsibility to protect and cultivate the environment. We can make a great contribution to the sustainable development of the earth by starting from small daily things.

3.2.12 Cool shade line draft and effect display under the tree

In the picture (FIG. 3-17), the design echoes with the picture above (3-16). In the design picture, the trees are flourishing, and the young men and women chat healthily and happily under the trees, and man and nature live in harmony.

Only in the environment suitable for growth can there be tall trees and growing youth. We call on people to pay attention to the natural environment around them and be a part of low-carbon development and construction.

Continuing from the design pictured in Figure 3-17, it's evident that the emphasis remains firmly placed on the interdependence of mankind and nature. This harmony extends not only to the visible aspects of our world but also to the invisible forces that shape our lives. The lush trees symbolize the vitality and resilience of nature, while the youthful men and women beneath them represent the next generation, their futures intertwined with the health of the planet.

In this vision, the tall trees stand as guardians of the past, witnesses to the cycles of life and death, growth and decay. They are a reminder that only by respecting and nurturing the natural world can we hope to secure a future for ourselves and our descendants. The growing youth, their laughter and conversations floating through the branches, represent the hope and potential of a world that is mindful of its environmental responsibilities.

Our call to action is not just a request but a urgent necessity. We must all become advocates for the preservation of our natural environment, embracing low-carbon living and construction practices that minimize our impact on the planet. It is only through collective effort and a shared commitment to sustainability that we can ensure a future where man and nature continue to coexist in harmony, where tall trees and growing youth stand as symbols of hope and regeneration.

Summary of the chapter 3

1.logo design process
2. Title font design process
3. Paper-cut page design process

Chapter IV
Design encountered problems and solutions

In the initial stage of the design project, due to insufficient preparation, the content of the first draft I designed was quite unsatisfactory. This situation makes me deeply anxious, because every step of the design work is very important, and any negligence may affect the final effect. I know that only through unremitting efforts and continuous learning can we overcome these difficulties and achieve the expected results of the design.

In order to solve this problem, I invested a lot of time and energy in searching and collecting information. I have browsed countless design websites, forums and books, looking for inspiration and solutions. I also actively consult my classmates and tutors around me and learn from their experience and knowledge. In this process, I gradually accumulated rich design materials and skills, which laid a solid foundation for the subsequent design work.

With the continuous accumulation of information, I began to deeply analyze and reconstruct the design content. I carefully analyzed every element, color and layout, and tried to make every detail perfect. Although this process is tedious and boring, I know that only through such efforts can we create satisfactory design works.

In the design process, I also encountered many problems and challenges. Sometimes, I will encounter some problems that I can't solve. At this time, I will take the initiative to ask my classmates and tutors for help and advice. Through communication and discussion with them, I not only solved the problem, but also learned a lot of valuable design knowledge and experience.

After unremitting efforts and continuous learning, my design work has achieved remarkable results. The later works not only achieved the expected effect visually, but also expressed the content and connotation more deeply. Although this process is full of challenges, it also makes me grow and progress.

Throughout the design process, I deeply realized the importance of preparation. Only by making full preparations can we be comfortable and handy

in the subsequent design work. I also realized the necessity of continuous learning and progress. Only by constantly learning new knowledge and mastering new skills can we keep moving forward in the field of design and achieve better results.

In the future, I will continue to maintain this studious attitude and constantly improve my design ability and level. I believe that in the near future, I will be able to create more excellent design works and contribute to the development of the design field.

Conclusion

Learn about carbon emissions and pollution, then design what that fits the design theme. From which I gained how to grasp the key to design. Note the mutual representation and contrast of the various elements. In the design, visit other design works, analyze their own shortcomings, and timely adjust the immature places in the design. Every part, to improve and enrich the content, do excellence. Make full use of their professional knowledge to understand other relevant works, refine the essence of them to improve their own design works.

After leaving school, I will still learn the knowledge of painting, enrich my ability, learn from the excellent people around me, give full play to my positive and enterprising thoughts, and start for a better life. Through this time, the graduation project, my painting professional knowledge and technology have been incomparable improvement. Finally, I wish me and my family, teachers and classmates a better and better future, higher and higher achievements, more and more healthy body.

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ANNEX

Figure 3.1 Figure 3.2

Figure 3.3 Figure 3.4

Figure 3.5

Figure 3.6

Figure 3.7

Figure 3.8

Figure 3.9

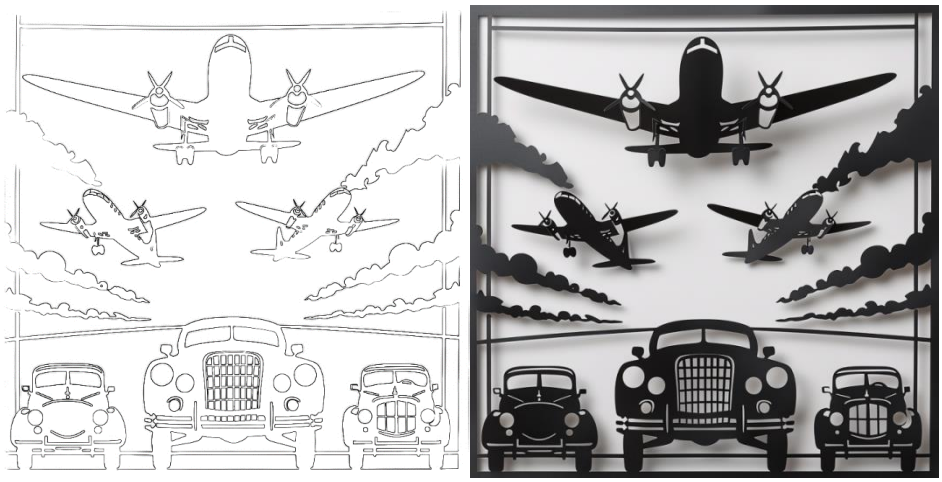

Figure 3.10

Figure 3.11

Figure 3.12

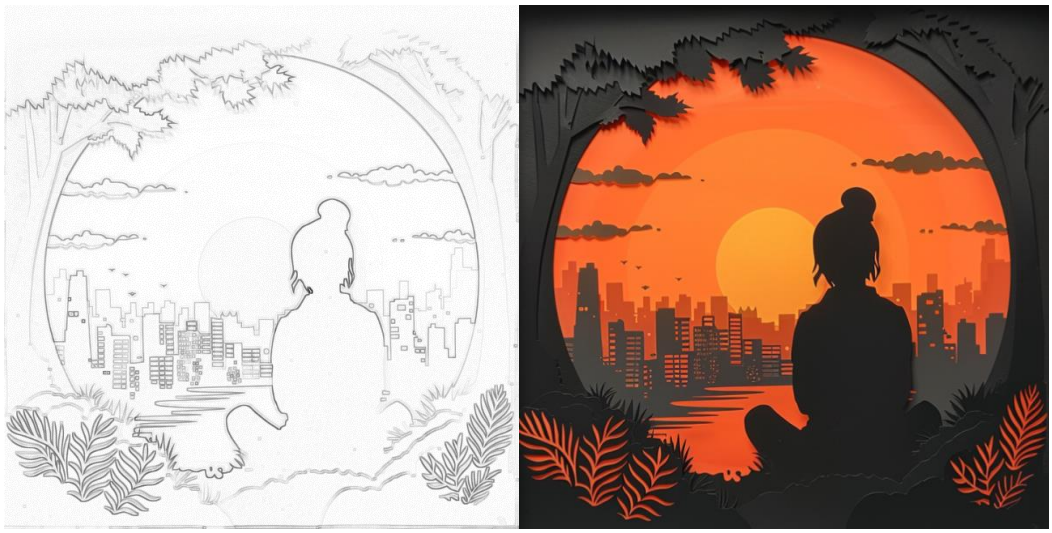

Figure 3.13

Figure 3.14

Figure 3.15

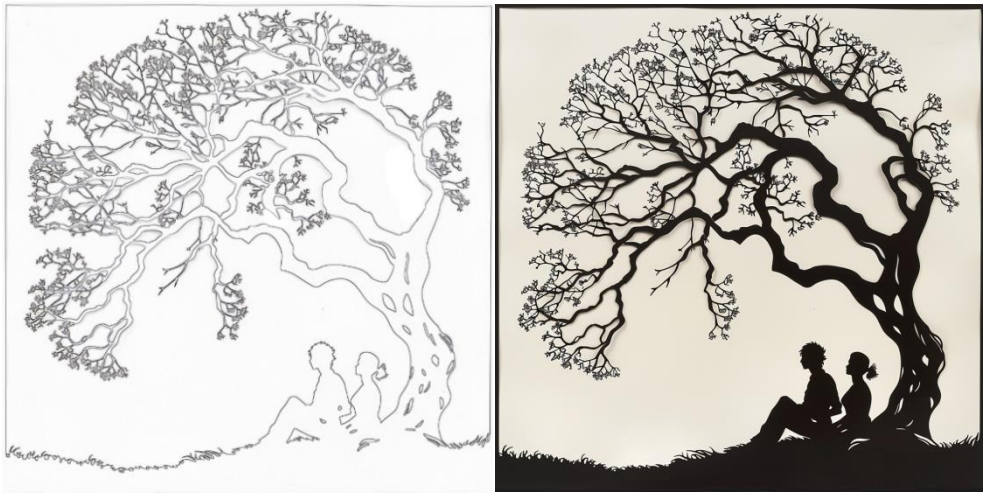

Figure 3.16