

摘 要

美学起源于西方,是对美的理论性研究,随着人们日益增长的审美需求,审美成为翻译中的一个重要要素,越来越多的人开始从美学方面进行翻译研究,但是在西方翻译的美学研究还仅限于艺术和哲学领域,虽然中国的学者把美学的意义扩大,并在此基础上创建了翻译美学,但总体理论还不够系统、不够成熟。此外,近年来,随着科学技术的信息化趋势,各国人民越来越重视科技的文字载体的翻译,并取得了较好的成果,总结了许多技巧和理论,不过对科技英语翻译美学因素的研究还几乎空白。

本论文依托中外流行的美学翻译理论,采用翻译美学的分析方法,尝试以此来分析科技英语及其翻译的美学特征,从而阐述自己对科技英语翻译的美学标准的观点。

本文遵循科技英语翻译过程中的美学翻译方法,将原文和译文作为审美客体,译者和读者作为审美主体,并举出相应的例子来支持本文的论证,从而最终得出笔者对科技英语翻译美学标准的观点,即在传统的“忠实、通顺”的基础上进一步细化,对不同的部分分别从音、形、义等方面的忠实和语序方面的通顺来得出各自不同的标准。

首先,笔者在引言中注明了此论文的写作动机、写作目的以及研究意义;并在文献综述中按照时间顺序对西方和中国美学与翻译关系的发展史以及著名翻译理论家的观点进行了分别的综合论述,在此基础上笔者对中国和西方美学翻译理论的异同和不足进行了总结,并以此为基础提出了自己对国内翻译美学研究及其在科技英语汉译领域的应用提出了一些观点和建议。

第二部分笔者先对 EST 汉译过程中的美学主体和客体的作用和特点进行了分别的分析,并在此基础上提出了 EST 翻译过程中审美主体译者和 TL(译文)读者应达到的要求,以及中英文科技文体共有的美学取向。本部分旨在从理论向应用的过渡,以求为主体部分的分析提供理论铺垫。

第三部分笔者分别从术语、标题和文章正文三方面分别探讨了科技英语翻译的美学因素,并在分析 EST 翻译实例的基础上得出了适当的翻译标准,在传统的忠实、通顺的基础上对其做了进一步的细化,以求更加符合科技英语美学翻译的具体特点和要求。

最后,是对全文论述的总结,并提出自己对科技英语翻译美学标准的观点,同时指出本论文研究的不足,给后来的研究者提供了一些方向性的建议。

关键词: 翻译美学 科技英语 美学要素 翻译标准

Abstract

Born in western countries, aesthetics has attracted more and more translators' attention in their translation theory study, which is confined into the fields of art and philosophy in western countries, while in China though possessing a wider meaning, is still not mature in theory or practice. This thesis will be devoted to its application in the EST translation process on the basis of those already made theories.

In the past few years, with the informationalization of science and technology, its written papers are more emphasized, which has been quite fruitful, but not mature enough, on which point the author would like to make some exploration so as to do some help to those yet to come.

On the basis of those popular aesthetic translation theories both in and out of China, the author adopts the descriptive and analytic method of translation aesthetics, in order to produce her own ideas on translation aesthetics of EST.

The thesis, following the aesthetic translation method of EST, with the translator and readers as the aesthetic subjects while the SL text and TL text as the aesthetic objects, with several supporting examples, finally gives birth to its own ideas on translation aesthetics criteria of EST, that is, to go further on the basis of faithfulness and smoothness, which is, faithfulness in syllable form, morphology, sentence structure, meaning and style, and smoothness in sequence.

At first, the author makes introduction to the famous translation theorists both in and out of China and their respective aesthetic translation theories, between which a comparison is made, on the basis of which the author makes some personal suggestions.

The second part is the theoretical and practical discussion of aesthetics in EST translation, aiming to make a bridge from the theory to the analysis part.

The third main part respectively analyzes the aesthetic translation of terminology, titles and body part of EST, and come up with some more detailed translation criteria than the traditional faithfulness and smoothness in order to suit the EST articles better, with a purpose of highlight the researchers yet to come.

Last, there are a simple summary of the whole thesis, in which the author makes her own translation aesthetic criteria clear, points out her shortcomings and limitations, and also makes some suggestions for the future researchers in this field.

Keyword: Translation Aesthetics EST Aesthetic Elements
Translation Criteria

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Chapter One Introduction

1.1 Research Motivation

Along with the fast development of science and technology as well as the clearer trend of globalization, there is a greater need for people with different languages to communicate with each other in a wider field, which has endow translation with an even greater importance. No matter it is in or out of china, translation has a long history, during which it gradually combines with other subjects, of which the relationship between it and aesthetics is always a hot topic.

In both eastern and western world, aesthetics has a long history. However, the study between translation studies and aesthetics is relatively a new domain. Translation aesthetics is an interdisciplinary subject which applies aesthetic theories to translation studies. Born in western countries, aesthetics has attracted more and more translators' attention in their translation theory study, which is confined into the fields of art and philosophy in western countries, while in china possesses a wider meaning and achieves more study. Many prestigious masters and scholars in China, such as Fu Zhongxuan, Liu Miqing, Mao Ronggui, Xu Yuanchong have published some books and articles on translation aesthetics. Surely certain achievements have been scored in certain aspects of translation aesthetics, however, almost all the fruits focus on the literary translation. They are far from satisfactory, is still not mature in theory or practice and much remains to be done. In recent years, the study on EST translation and aesthetics has rapidly developed, which has been fruitful, yet the study on EST translation from the perspective of aesthetics still worth more noticing and exploring, for there are few books that offer systematic researches in this field. Therefore some aspects in this field remain untouched. This is why the author am eager to do some research in this respect.

We recognize that in a rapidly changing world in which knowledge is expanding at an unprecedented rate, information transfer and communication have becoming dependant more and more on efficient and effective translation. And from translation aesthetics view, we believe that the exploration in this field is to be inherently interesting and valuable. The author sincerely wishes that this thesis may have some enlightenment on the study and practice of EST Translation yet to come.

1.2 Research Objectives

Aesthetics is the study of beauty. EST is characterized by such features as use of scientific and technical terminology, fixed structure, strict logic and high accuracy. As a kind of information carrier both in written and in oral forms, it does possess certain aesthetic properties. This thesis aims to explore the aesthetic values of EST, so as to do some help for the aesthetic translation criteria study yet to come.

1.3 Research Significance

Despite the fact that scholars in and out of China have conducted many studies in translation and aesthetics, especially in literature translation and aesthetics, many aspects remain untouched, it is true of the study in EST translation and aesthetics. Few translation theorists explore EST translation from the perspective of aesthetics in a systematic way.

This thesis will study EST translation from the perspective of aesthetics and do some exploration into the aesthetic properties of the EST writings and their conversion into Chinese, based on which further conclude the specific translation criteria for the translation of scientific and technical terminologies, titles, and body of EST articles respectively. The research practically must be of great help for EST translators to produce better renderings, and theoretically will lay a good foundation for the subsequent research in relevant fields.

Chapter Two Literature Review

With the more and more obvious trend of globalization in economy, culture and other areas of our society, translation and translation theory which have been ignored for such a long time, seem more and more important and are being paid more and more attention to both in and out of china. In china, the development of translation theory, since its birth, has experienced four stages: initial period, developing period, mature period, and transformational period (Jiang Tong, 1999:6), while in the western countries, since its birth, the translation theory has developed from the dispute on word-for-word translation to sense-for-sense translation.

From the developing process of translation theory in china and western countries, we can find out that translation theory never ceased to seek nutrition from aesthetics.

In fact, aesthetics has as long a history as translation. As a unique mature of languages, since the birth of translation, aesthetics has become an important approach to judge the value of an original text and its translation, thus with the development of translation theory, has been developed to become an independent subject from philosophy, then has been developed more rapidly and systematically. Till both translation theory and aesthetics are developed to be complicated and modern enough, that is, in contemporary society, owing to the Chinese-specific aesthetic feelings, they finally come together to form a new study field---translation aesthetics in china, which is also a translation theory study field with Chinese characteristics.

Besides, the applying of “aesthetics”, which has long been confined into the field of philosophy and art, intends to be in much wider fields including daily life, culture and other areas. So with there being a stronger and stronger desire of communications and exchanges of science and technology, the translation aesthetics of scientific and technical articles is being more and more emphasized and researched.

In the following, after introducing the source of aesthetics, the author will summarize and make comments on some representative translation theories from the perspective of aesthetics of some famous translation theorists in different periods of china and the western countries, which is for the readers' reference.

2.1 The Source of Aesthetics

Though having quite long a history, as one of the branches for research in philosophy

and referring to the theoretical study of beauty and taste, aesthetics did not come into being as an independent subject until the eighteenth century, in which German classic philosopher Alexander Gottlieb Baumgarten (1714-1762), first put forward the idea of founding a new subject “Aesthetic” (Baumgarten used a word from Latin, whose equivalent German word is “Asthetic” and English word “Aesthetics”.) in his work *Aesthetica*, which is the so-called Aesthetics today. According to Baumgarten, the word “Aesthetica”, while being used as a professional term, referred to a subject researching perception of people. By “perception”, he meant people’s various feelings including emotion desire, imaginary and so on, which were closely linked with aesthetics and arts. The publication of the book *Aesthetica* was the mark of the birth of aesthetics as an independent study field, while Baumgarten himself was commonly regarded as the founder of it or “Father of Aesthetics”.

2.2 The Development of Western Aesthetic Translation Theory

Historically, the western translation theory has always had more or less to do with aesthetics through its whole developing process. The author would like to introduce the translation theory following a time sequence and the changing relationship line between translation theory and aesthetics.

It is generally believed that the beginning of the western translation theory can be traced back to the great ancient Roman philosopher and politician Marcus Tullius Cicero (106-43 B.C.) and the famous ancient Roman lyricist and epigrammatist Quintus Horatius Flaccus (65-8 B.C.) that followed.

Cicero demonstrates his opinion in his *De Optimogenere Oratorum* that “I did not hold it necessary to render word for word, but I preserved the general style and force of the language” (Shen Yuping, 1999:157), from which we can see that he tends to remain the beauty in style and language of the original texts. Horace, in his *Art of Poetry*, makes research on translation from the perspective of art and shows a desire for natural beauty. The translation theory of Cocero and Horatius is the initial highlight of western aesthetic translation theory.

The other two famous translation theorists , also the followers of Cocero and Horatius are Saint Jerome and Saint Augustine, with the former holding the view that the beauty and style of the original texts should be preserved by introducing some translating methodologies, which is the same as that of Cicero’s, and owing the beauty of the translated text to naturalism, while the latter putting forward that a translator should pay

attention to three styles: simplicity, elegance and sublimity, and creatively pointing out that the choice of the style depends mainly on the requirements of readers (Mao Ronggui, 2005:13).

From their respective translating views, it can be concluded that they mainly hold that the translated text should be natural, and they are against word-for-word translation and for sense-for-sense translation, which indicates that target language-oriented approach is what they support. The translation theories of them have a long-lasting impact on western translation theory.

From the fourth century A.D. to the second half of the eighteenth century A.D., with the spread of Christianity, Bible translation became the major form of translation. The most influential Bible translator is Martin Luther (1483-1546), who puts emphasis on the aesthetic value of the translated text, which should possess a native style that can make the readers understand and satisfied in aesthetics.

Another famous translation theorist in this period is the Homeric epic translator in England George Chapman (1559-1634). He regards the original text's "spirit" and "tone" as the key to successful translation.

Then we come to the greatest translator of the seventeenth century, John Dryden (1631-1700), who is also the founder of the classic translation theory. He is a supporter of Cicero's aesthetic translation theory, who treats translation as an art. He is the first one in the English translation history to definitely put forward the theory that translation is an art.

Alexander Fraser Tytler (1747-1814), the great English translation theorist, in his work *Essay in the Principles of Translation*, puts forward the most famous three principles of translation as follows (A.F.Tytler, 1997: 208-212).

1. that the translation should give a complete transcript of the ideas of the original work;
2. that the style and manner of writing should be of the same character with that of the original;
3. that the translation should have all the ease of the original composition.

From the above, we can see that the translation theorists of this period mainly inherit the "Cicero-Horace-Jerame" paraphrase (or free translation) translation theory and they oppose the word-for-word literal translation while strongly supporting the sense-for-sense paraphrase translation.

All in all, there is a common point shared by all the above translation theorists mentioned, which is that they all base their translation theory on philosophy-aesthetics,

which is the most outstanding feature of the earliest translation theory research.

Then, we come to Croce (1866-1952), the renowned Italian philosopher and aesthetician, whose aesthetics ideas are based on the subjective immaterialism, who believes that beauty lies in soul. His translation theory has a great influence on the trend of the development of the western translation theory.

From Croce on, there came a revolutionary change in the western translation theory research, that is, it began to turn from being based on traditional aesthetics to being based on linguistics, which is the basic characteristic of the translation theorists of this period. Following are some representative translation theories of this period.

I.A. Richard makes a practice-oriented approach to translation. In his *Toward a Theory of Translating*, which was published in 1957, he refines his theory of meaning while discussing how one should compare translations to original texts. Though his attempt to resolve problems inhabiting perfect understanding was made more and more problematic in light of three decades of theoretical inquiry, his 1953 model was still tailored for the translators aiming at arriving at the “proper” translation.

Ezra Pound (1885-1972), a great poet and a famous translator, devotes much time and efforts to translation. Unlike Richards’ theory of proper translation, his translation theory focuses on the precise rendering of details, of individual words, and of single images. He bases his theory on a concept of energy in language. According to him, the words and details are not black and white typed marks on a page representing something else, but sculpted images. He regards the translator as an artist, who molds words. In his eyes, Anglo-American words or Chinese characters represent neither meanings nor structures, but thinks with energy. So they should always be treated in a network of relations. He also thinks that translation is the rewriting of the original text. “or a translation might be original writing, in which literary standard in the translating culture guide the rewriting of the foreign poem so decisively as to seem a new poem in that language” (Venuti, 2000:12). From the above, we can see that Pound has begun to emphasize the impact of culture on the translation process, which is an earlier sign of the cultural turn afterwards.

Eugene A. Nida, who puts forward the famous “science” of translation, bases his theory on his experience of translating the Bible.

We can find some assumptions of his early translation theory in articles written in the fifties and the book *Message and Mission* (1960). With the adoption of Chomsky’s theoretical premise of generative-transformation grammar, Nida’s theory and his book *Toward a Science of Translating* have been more applied to the whole translation theory study field.

Nida develops a translation science, whose approach represents a classical revival in the nineteenth century, an emphasis on technical accuracy, which is just because of his opposition to Arnold. To him, Arnold just demands too much for the readers to become informed about the original culture. He places more requirements upon the translators just as in a section called "Basic Requirements of the Translator" he writes: "He must understand not only the obvious content of the message, but also the subtleties of meaning, the significant emotive values of words and the stylistic features which determine the 'flavor and feel' of the message. In other words, in addition to a knowledge of the two or more languages involved in the translational process, the translator must have a thorough acquaintance with the subject matter concerned" (Nida, 1964:150-1). The translated text, according to him, should produce a response in a reader of the target language that is "essentially like" that in an "original" reader (Nida and Taber, 1969:202). So, we can see that, Nida prefers to emphasize the cultural context and to judge the translation effect according to the readers' response.

Besides, Eugene A. Nida's "Functional Equivalence" is one step forward in translation theory and generates far-reaching impact internationally. "our ideal in translation is to produce on the minds of our readers as nearly as possible the same effect as was produced by the original on its readers." (Nida, 1964:164)

From the 1990s, there appeared a phenomenon called "cultural turn" in the translation study field. We can clearly see that the cultural component is always present in Nida's work, but as for the turn from "science" to "culture", the following two translation theorists contribute a lot.

The first one is James S. Holmes (1924-1986), a great American translator, published his thesis *The Name and Nature of Translation Studies* which is a milestone in the history of western translation theory development in 1972. With his research, translation studies became "more concerned with analyzing (a) the relationship of the translated text to the source text within a framework of the signifying practices inherent in that particular literary tradition and (b) the relationship of the translated text to the signifying practices within the framework of the tradition of the target culture." (Edwin Gentzler, 2001:92), which can be regarded as one of the founding statements of "cultural turn".

Susan Bassnett, has a great impact on the "cultural turn" of translation theory. In 1990, Bassnett edited the thesis collection "Translation, History and Culture" with Leferere, who also wrote the preface to it, whose name is *Introduction: Proust's Grand mother and the Thousand and One Nights: The "Cultural Turn" in translation studies* after the publishment of which, the editors became the major force of this topic. Besides, in her

Transplanting the Seed: Poetry and Translation, Bassnett put forward her advice for translators: to focus on the role of language and culture in the text. “in order to translate poetry, the first stage is intelligent reading of the source text, a detailed process of decoding that takes into account both textual features and extratextual factors.” (Bassnett, 2001:60).

With the development of “cultural turn” in the field of translation theory, there is an increasing need for translation theory and aesthetics to come together again.

From the above, the author come to such a conclusion that the development of western aesthetic translation theory mainly experiences three stages: the stage researching translation theory with philosophy-aesthetics, the stage researching translation theory with linguistics, and the stage researching translation theory with culture. In other words, the relationship between translation theory and aesthetics has experienced three stages, that is, first being researched together, then apart, finally together again.

2.3 Chinese Aesthetic Translation Development

2.3.1 The Chinese Aesthetic Translation Tradition

Translation is the most important way of communication and exchange between different cultures, the desire of which is always born from the fact that one culture is less developed than another and badly needs to obtain nutrition from it. So, as a great eastern country, which ranks in the most developed for possessing a great culture, the ancient china had a less need and desire to learn from other cultures, which has resulted in china’s weaker status in translation theory than the western countries. Though there were several translation theorists devoted to the translation of Buddhism scriptures, and made some achievements, resulted from the fact that there was an increasing need for the emperors and common people to pick up some more developed Buddhism which existed only abroad, china’s translation theory has always been developed after the steps of the western countries’.

Till modern society, china’s translation theory finally gets its own distinctive characteristics, which is the combination and integration of translation and aesthetics, resulting in the formal birth of a new subject: translation aesthetics. In the following, the author will introduce the development of Chinese aesthetic translation in the sequence of time.

As a nation with more than five thousand years’ history, china has as long a history of

aesthetics as that of philosophy. According to what is recorded, the source of aesthetic thought of china can be traced back to Confucius (551-497 B.C.), one of the greatest philosophers and literates in Chinese history, who pursued the perfect harmony by the integration of supreme beauty and supreme good, thus put forward the standard of “文质统一”, which became the main stream of Chinese traditional translation theory. Confucius’s aesthetic thought was positively followed by another great philosopher Mencius (372-281 B.C.), who supported the unity of beauty and truth. Aesthetic thoughts were not involved in translation until the translating practice of Buddhism scriptures of Laozi, the great Chinese philosopher of the late Spring and Autumn Period and founder of Taoism, who raised the theory of “beautiful words damage faithfulness and vice versa” (美言不信, 信言不美), which was quoted by Zhi Qian to defend literal adherence to the original text as the basic principle for scripture translation, thus introduced into translation studies the important aesthetic controversy of beauty and faithfulness which lasted for seventeen centuries in china, “beauty” and “faithfulness” of which together with “文” and “质” of Confucius become the earliest and long-living concerns of Chinese aesthetics history.

Until the 700s B.C., Xuan Zang, a great scholar and monk in the Tang Dynasty, who was crowned as the guru in introducing Buddhism into china, formulated the translation standard that the translated version should be faithful to the original text in content and succinct in wording (“求真喻俗”), which was in accordance with “文质统一” and thus moved one step further from it. With the focus on the faithfulness of the content and beauty of form, his theory is a substantial stride towards maturity on aesthetic translation theory. Besides the breakthrough in theory, he also created lots of translation techniques and newly employed some tactics such as omission, deletion, conversion and incorporation, which were under the guidance of his theory and reversely emphasized it.

In 1894, five years before Yan Fu made his voice heard by the famous Three-character Criterion, an overlooked translation theorist, Ma Jianzhong(1845-1900), by the first time put forward the principle of “tactful translation” (神似) by the three necessary requirements for good translation: (1) the translator should be a master of both the foreign language and Chinese, and know their similarities and differences of the two languages. (2) the translator should ascertain the meaning, style and gist, then try to imitate and express its spirit and tone in the translated text; (3) it is required that the translated text bear no differences from or be the same as the original text, that is, to produce an effect on the readers of the translated text the same as he would drive from reading the original, the last one of which bears some similarities with Nida’s idea of judging the effect of a translated text by the reaction of the target readers. These three principles can be concluded as

“faithfulness”, being completely faithful from content to style to effect. Being more common than that of Yan Fu, his theory was treated as the supreme principle of translation. But being a grammarian but not a translation theorist, and with no translating practice, he was always overlooked together with his theory.

But Ma Jianzhong’s voice did be heard by some people, one of whom is Yan Fu(1854-1921), who has biggest influence on the field of translation in china. Yan Fu developed his famous Three-character Criterion: Faithfulness, expressiveness and elegance (信, 达, 雅) by his comments “translation has to do three difficult things: to be faithful, expressive, and elegant. *The book of changes* says that the first requisite of rhetoric is truthfulness. Confucius says that expressiveness is all that matters in language. He adds that if one’s language lacks grace, it won’t go far. These three qualities, then, are the criterion of good writing and, I believe, of good translation too. Hence besides faithfulness and expressiveness, I also aim at elegance...” (Wang Zuoliang, 1991:113). “Apart from being faithful and expressive, it is important for the translator to be elegant.” (Tan Zaixi, 2000:324). With faithfulness coming from the aesthetic thoughts of Laoism, and expressiveness and elegance having something to do with Confucius, his theories have grasped the gist of Chinese classical aesthetics and highlighted the criteria of aesthetic appreciation and value, and thus has been studied and followed by generations of Chinese translators, and thus has a long-lasting impact on the development of Chinese aesthetic translation theory.

Lu Xun (1881-1936), a great Chinese literary figure and translation theorist, came up with the thought that a translator should strive to make his translation as easy as possible for the readers to understand and also keep the char and style of the original author. He put forward three aspects of beauty in his *Essentials of Chinese Literature* “Beauty in sense touches the heart, beauty in sound touches the ears, beauty in form touches the eyes.”, which is applied in verse translation by lots of translators. After the May Fourth Movement, he put forward his translation standard “faithfulness and smoothness” (信, 顺).

Fu Lei (1908-1966), an outstanding Chinese translator, who pushed Chinese translation theory one step forth by proposing his famous aesthetic criteria of translation “similarity in spirit” (神似). He used the image of painting to vividly illustrate the criteria of aesthetic beauty. To him, translation should be like painting pictures, in which the translator should pursue spiritual resemblance rather than appearance similarity. In the 1950she made some approach on the subject of “spirit versus form” and put forward his principle of “striving for spiritual closeness rather than formal closeness” in his letter of January Sixth, 1963 to Luo Xinzhang (Sun Yingchun, 2001:324).

Mao Dun, a great Chinese literate and translation theorist, gave prominence to aesthetic value in his definition of translation in his speech at the *National Conference of Literary Translations*: “literary works are a kind of art creation in language. What we damaged of them is not merely the recording of concepts and incidents. In other words, the reader must have a strong feeling towards the characters’ thoughts (2003:128) and behaviors through the artistic images portrayed in their literary works. Literary translation is to reduce the original artistic images in another language so that the reader of the translation may be inspired, moved and aesthetically entertained in the same way as one reads the spirit and features of the original, such creative artistic translation is quite necessary.” (Liu Zhongde, 1994:527-28).

Qian Zhongshu, a learned Chinese scholar and translation theorist, proposed his thought of “sublimation” (化境). He compared translation to “the transmigration of souls” “to transfer the language of a work into another language without bearing any trace of awkwardness or far-fetchedness in translation because of the difference of language usage, and at the same time without losing the slightest flavor of the original”. (Liu Miqing, 1995:1032). That is, while doing translation, a translator should completely keep the original flavor free from signs of stiff word-for word translation. Sublimation, meaning the attainment of perfection, made the “similarity of spirit” theory one step further, and thus was always regarded as the ultimate criterion of aesthetic translation.

Lin Yutang, a great translator, who was always omitted in the field of translation theory research, actually achieved a lot in translation. He put forward the principles of “faithfulness, expressiveness, and beauty” (信达美), and proved them from the perspectives of linguistics and psychology. He is a predecessor in china to raise the importance of linguistics and psychological researches, and to apply them in translation study. Besides, in the 1930s, he proposed “sentence translation” and gave a clear definition of it, which is easier to follow in practices.

Xu Yuanchong, a great translator in poetry translation, was the authority in translating Chairman Mao’s poems. Based on the research on the former translation theories, and his own experience in poetry translation, initiated the principle of “beauty in three aspects” by emphasizing to maintain the beauty in soul, form and meaning (sense) of the original texts in the translated texts. He (1984:129) also suggested that the order of importance of preserving the three “beauty is not the same” and “Beauty in sense is in the first place; beauty in sound the second and beauty in form the third. The ideal, best state is to preserve the three at the same time. When it can not be achieved, the beauty in form can be neglected: but on the precondition of preserving beauty in sense; beauty in sound should be

preserved as much as possible.”

The famous translation theorist Liu Zhongde further put forward his opinion of “faithfulness, expressiveness and closeness” (信、达、切).

In spite of the variety of opinions, in nowadays, two criteria are finally arrived at as a common point and are almost unanimously accepted after so many years’ amalgamation and development, namely, faithfulness and smoothness (忠实, 通顺), which are practicable to various translation including both literary works and technical writings.

2.3.2 The Forming of Translation Aesthetics in China as an Independent Subject

Chinese traditional translation theories are all based on Chinese traditional aesthetics and philosophy. But “aesthetics” as an independent subject which is still new in china was indeed introduced into china from western countries. It was first brought into china by way of Japan in the beginning of the twentieth century, out of the special need for Chinese culture to be modernized. It was translated as “美学” in Chinese and developed quickly in china in the beginning of 1980s, lots of western translation theory was introduced into china for the purpose of reference. In western countries, after the 1970s, in their translation theory studies, a phenomenon called “cultural turn” appeared. American translation theorist Bassnett and Leferere (2001) together published a work constructing cultures: *Essays on Literary Translation*. Italian Scholar Umberto Eco “views translation as identical to culture” (Gentzer, 2004:193). Translation theorists Lambert and Robins “new translation less as an interlinguistic process and more as an intercultural activity” (Gentzer, 2004:193). With aesthetics being in the category of culture, translation being an intracultural action, translation should be an activity of aesthetic-exchanging. Besides the impact of the “cultural turn” of the western countries, from the 1990s, china turned into commercial society fast, which help to expand the meaning of “美学” into almost every field of life, while aesthetics in western countries was always confined to the fields of philosophy and art. Finally, “translation” and “美学” got married to be “翻译美学”, which become a unique characteristic of Chinese aesthetics translation theory.

So far there has not been so many works on “翻译美学”, for it’s still too young. The book *Comparative Research on Translation Aesthetics* published by Xi Yongji in 1993, that is, the original version of *Comparative Aesthetics of Literature Translation* of him in 200, is the germination of translation aesthetics. The book *aesthetic linguistics* published by Qian

Guanlian in 1993 is the basement of translation aesthetics. Then, in 1995, Liu Miqing's *An Introduction to Translation Aesthetics* built the theoretical frame of Translation Aesthetics. And *Translation Aesthetics* published by Mao Ronggui in 2005 is the first book named after the subject.

2.3.3 The Introduction of EST into China

In the past 30 years, china, as a developing country, has benefited a lot from the policy of reform and opening-up, which is to open our doors in order to take in the science and technologies and investment of foreign countries, our great leader Deng Xiaoping has raised the importance of information and technology long before. Nowadays, the more developed society raises a greater need for latest information and technology to be introduced from abroad, which put more requirements on translation. To the translation of EST, of course, correctness and integrality is of the most importance, but the more developed a society is, the more its people require for spiritual enjoyment, which is the aesthetic feeling of the translated text while applied to EST translation.

As science and technology plays an important role in the development of our country, the translation of EST seems much essential, in which the aesthetic feeling of EST translation contributes a lot to the final effect. So it is necessary and badly needed for us to do some research in the EST translation from the perspective of translation aesthetics.

The study on EST can date back to the 1970s, according to Liu Miqing.

So far, there are few works on this topic, among which the most important is Mao Ronggui's *Translation Aesthetics*, which concluded the "three beauty" of the wording and sentencing of EST writings, namely, borrowing, transformation, and sophisticated, but yet not systematic enough.

2.3.4 A Brief Summary

2.3.4.1 Similarities and Dissimilarities between Chinese and Western Countries' Translation Theory Development

After a comparison of the Chinese and western development of aesthetic translation, such a conclusion can be arrived at that there are both similarities and dissimilarities between Chinese and western countries' translation theories.

For similarities, both Chinese and western countries' translation theories are

developed centering a key point as its debate, with the former on literal translation and free translation, and the latter on word-for-word translation and sense-for-sense translation.

As for the dissimilarities, traditional studies of translation in China are characterized by their fuzziness and ambiguity in logical intension. They are disposed to use a series of abstract and impressive aesthetic terms such as: “elegance”, “closeness of spirit”, “beauty in sentiments and expressions” which tend to be so fuzzy both quantitatively that no one is very sure of their exact interpretation. But western translation studies pay much attention to explicit definition and clearness of logical intension. An typical example is Yan Fu put forward his opinion with just three Chinese characters while the western translation theorist Tytler express similar opinions in three long sentences.

Zhang Boran arrived at such a conclusion in 1997 that it is wildly accepted that western translation theory, though objective, rational and analytic in theory, stress too much linguistic equivalence whereas Chinese traditional theory, which is subjective, intuitive and impressionistic, is distinctively marked by a tendency towards art and aesthetics and according to researchers, western translation theory is based on linguistics while Chinese culture and stemmed from classical literary theory and class aesthetic. (Zhang Boran, 1997:25)

2.3.4.2 The Limitation of Chinese and Western Countries' Translation Theory

As to western translation theory, it has to be admitted that it has always been more developed and systematic than Chinese translation theory. But confined by such factors as their language and culture, western translation theorists tend to pay more attention to the structure and science or the “form” of the text, thus overwhelming the element of aesthetic feelings of the readers or the “spirit”.

On the contrary, Chinese translation theory study seems to go to another extreme that the Chinese translation theorists tend to put more importance on the “spirit” of the text, which is not and can not be detailed or systematic enough to guide the practice.

Besides, Chinese translation study has been following the western in the past years, and been concentrating their efforts on studying the translation methodology of western. Although in the late twentieth century, it has found and established its own characteristic, which is the founding of translation aesthetics as an independent subject, it is far from being the main stream of translation study in contemporary society.

Finally, for both, they did much research on the “source text-translator-translated text” line, rather than the “translator-translated text-readers” line. Although there are some

scholars such as Nida who raises the concept of “Equivalent effect”, which highlights the readers’ role in the translation process and stated that translation process would not be completed until the TL readers finally accepted the translated text, raising the idea to view the readers’ response as an important factor, they did not do as much research or practice on it as they did on the translator.

2.3.4.3 Highlights for Chinese Translation Theorists

In recent years, the Chinese translation theorists have made lots of research on EST translation, which is almost blank in the western world, and founded many theories that are yet to improve. Besides, in China a totally new subject “翻译美学” (translation aesthetics) is finally founded, though it is not so mature or systematic enough. These two points the most important beginning for our Chinese translation theorists to find their own identities in the author’s eye, and this is the exact reason why the author chooses to do such a research in this thesis.

Chapter Three The Elements of Translation Aesthetics of EST

In aesthetics, there is a phrase key to its understanding, that is, sense of beauty, which builds a bridge between the aesthetics subjects and objects. Mao Dun once said that “when seeing some natural things or artificial artworks, we tend to be aflame in emotion, which is maybe happy and excited, or sad and mad... all in all, we have a sense of beauty with the things we perceived” (1978:15). Sense of beauty, is the reflection in attitude towards whether the objects can satisfy the specific social need of the subjects (Mao Ronggui, 2005:22). As it is an abstract psychological process with the forming of sense of beauty in the center.

3.1 Aesthetic Subjects

The aesthetics subjects, according to aestheticians, refer to those who have possessed the aesthetic competence derived from aesthetic practice (Gu Jianhua, 1999:14). Or, we can say aesthetics subjects are those who made aesthetics practice on aesthetics objects. In translation, there are mainly two aesthetics subjects: the translator and the reader, with the former being the aesthetics subject of the original text and the latter of the translated text. As the person who performs the whole translation process, the translator, obviously, is the most important factor in translation. Meanwhile, as the appreciator and judger of the translation effect, the reader, can be not overwhelmed.

In EST translation, since the cultural turn in western countries, and the modern aesthetics expanding in china, the translators and readers have had more requirements than just the preciseness and conciseness of information. What is more is the very topic we are dealing with, aesthetics feelings.

In this part, based on EST translation, the author will analyze the roles that the translator and reader play and some requirements for them, with a view to the effect of aesthetics.

3.1.1 Translator

3.1.1.1 The Role of the Translator in EST Translation

The translator plays a leading role in the process of translation. He is the first reader

of a text, thus should be the aesthetic subject of the source text, for translation is in fact a process of interpreting the aesthetic information in the source text. He has to appreciate the beauty in the source text and then reproduce it in the target text. As the first reader of the source text and the writer of the target language text, he must fulfill the tasks of aesthetic perception, aesthetic conversion, and aesthetic polishing during the process of translation. So, the qualification of the translator directly decides the quality of the translation. Luo Xinzhang proclaims that “the quality of translation depends on the extent to which the translator or employs his craftsmanship...the translator should be accorded a place in future translation study” (Xie Tianzhen, 1999:126-127). Eugene Nida (1964:145) claims that “no discussion of the principles and procedures of translation can afford to treat translating as something apart from the translator himself...since the translator is the focal element in translating, and thus there can not be any completely impersonal objectivity in his work---since he is part of the cultural context in which he lives---his role is central to the basic principles and procedures of translating.”

In EST translation, as it requires more for conciseness and preciseness and has lots of professional words, it demands more from the translator for a broader and quicker grasp of information and other things. So, to endow the translated text with more beauty in the readers' eyes, a qualified translator for EST must fulfill a number of requirements.

3.1.1.2 Requirements for the Translation of EST

Nowadays, without a more developed world, science and technology are being renewed with a much faster speed. To keep up with the others, every country needs to learn from others, which raise EST translation to a much higher position. To meet this need, a translator who wants to be qualified must fulfill the following requirements.

3.1.1.2.1 A Precise Attitude towards Science and Punctilious Working Style

As we always believe in, “attitude is everything”, in EST translation, a field requiring so much for preciseness, possessing a precise attitude towards science and punctilious working style is absolutely the most important prerequisite of an EST translator. If he doesn't have such a quality, huge mistakes will be made, for example, if the word “panel” (防渗墙槽孔) were mistaken for another word “penal” (刑事地、惩罚地), just imagine what mistakes and trouble would be made for the readers of the translated text even if they can figure out the mistake after a long time! Chinese great translator Lu Xun once said:

“we used to think translation was easier than writing, for it needed no ideation. But when we do it, there are always problems: for example, if there is a noun or a verb we can come up with, we can go around it while writing, but have to go forth to think hard, just as if we are searching for a key needed badly to open a case, but in vain.” (Yang Chao, 2005:49). So as an EST translator, he should hold a scientific attitude and pay more attention to the quality of translation.

3.1.1.2.2 Possession of Professional Knowledge and Broad Common Sense of Science and Technology.

As an EST translator, one must be familiar with the professional knowledge within a scientific field. As science changes fast, he should also learn new knowledge and vocabulary and improve himself all the time. The more thorough one's knowledge in the field is, the better translation he can achieve. Following is an example.

Electricity is a very useful servant when it is kept under control.

电受控时，才能很好的为人民服务。

If the translator knows nothing or little about the field of electricity, which leads him to put the word “servant” into “仆人”，a huge mistake will be made.

3.1.1.2.3 A Good Grasp of the English Language

To be an EST translator with a high level, one must know the grammar rules, the vocabulary of English and various translation techniques well as well as the professional knowledge in the field. He has to be familiar with the sentence structure, the word meaning and commonly used phrases and so on in English, so as to correctly put it into Chinese. Following is an example:

Relaying of single bus is relatively simple since the only requirements are relays on each of the circuit plus a single bus relay.

It can be most probably translated literally as “单母线的继电保护相对简单，因仅需要每条线路上的继电保护和单电母的继电器。”

Obviously, it's not professional enough, for it does not make an intensive analysis or translation of the original sentence, even though the target readers can guess its meaning.

So, it should be finally changed to: “因仅需对每条线路以及母线进行继电保护，所以单母线的继电保护相对简单。”

3.1.1.2.4 A High Level Master of the Chinese Language and Chinese Culture

To make an excellent EST translation, the translator must express clearly the technical content and the style of the original text. To achieve this aim demands not only a thorough understanding of the original text, but also a familiar grasp of Chinese vocabulary, grammar in a concrete field. Only by this way, can he create a final translated text acceptable to the target readers. Following is an example:

Further development in instrumentation techniques is certain to be very rapid because of the increasingly measurement and control of physical variable in a wide variety application.

由于对测量和控制各种用途的物理变量的需求与日俱增, 制造技术一定会突飞猛进地进一步发展起来。

The use of the underlined four-word phrases, gives the translated text more sense of beauty.

3.1.1.2.5 A Strong Consciousness of Latest Information

Nowadays, with the quick development and exchanging of science and technology, informationization has become a characteristic of modern society. To keep one's EST translation not out-of-date, an EST translator should have the consciousness to "grow" with what he deals with.

3.1.1.2.6 A Good Aesthetic Ability and Insight

In aesthetics, human beings, as aesthetics and creating beauty among aesthetic objects, subjects, perform the task of judging. Likewise, the translator as the aesthetic subject in translation, whose perception and representation of the aesthetic constituents of the original text plays a very important role in translation. He is to evaluate the beauty of the source text and convey it in the target language. He determines ultimately the aesthetic quality of the translated text. The more a translator can perceive the aesthetic constituents of the original text as a unified whole, the better he may translate. His aesthetic perspectives and competence determine the levels of his aesthetic reception and determine the quality of the translation. Alastair Fonler (Mao Ronggui, 2005: 20) points out that, if the scientific papers absolutely focused on the conveying of the information, the papers themselves would lose their value of existence when the technologies were considered out of date. Consequently,

he advocated that scientific workers should consider the value of the scientific contents and the non-technical factors as well, that is, scientific paper should carry both scientific and aesthetic value. Translators must possess aesthetic ability and insight for EST. In the past, it was considered by many that EST translation was of complete utility, and it was just like a conveyer belt, transforming the scientific message from one end to the other. And the artistic devices seldom visited scientific articles (Shen Lin, 2006: 72). Liu Miqing (1996: 5) says that aesthetic constituents in translation are the intrinsic characteristics of translation activity and the intrinsic factors of people's ability of perception as well. They are more active in literary translation, but do exist in EST translation. In translation, a translator does perform pains-taking aesthetic activity although he may not have realized it. In his opinion the process of translation was also the process of aesthetic activity and aesthetic experience (Liu Miqing, 1996: 6). It is because of some translators' neglect of the aesthetic effects in scientific articles that appear some ungrammatical mistakes and the logic or common sense is violated. As a result, the acceptability and readability of the translation is weakened. Basically, how much the aesthetic values can be realized in the translation depends on the aesthetic qualification of the translator. Following is an example:

The original version: Hundreds of scientists around the globe are turning their microscope to soy in search of ways to prove or disprove its cancer-fighting ability or its benefits as a natural alternative to hormone replacement therapy. Good science requires patience.

Chinese Version 1: 全球有几百名科学家正在把研究方向转到大豆上来, 研究大豆是否具有抗癌能力或作为取代激素补充疗法的一种自然选择是否有益。获得令人满意的科研成果需要耐心。

Chinese Version 2: 全球数以百名科学家正把他们的显微镜对准了大豆, 想方设法的证明或反驳大豆具有抗癌能力或作为激素取代疗法的一种自然选择的益处。真科学渴求耐心等待。

The original paragraph reads smooth, conveying vivid images and fully demonstrating the aesthetic charm of language such as "are turning their microscope to..." and "Good science requires patience". Yet inversion 1, the image microscope is neglected by the translator. Read version 2, it's obviously much better. Therefore, a qualified translator shoulders the responsibility to improve their aesthetic consciousness intentionally and pay special attention to the aesthetic properties in EST articles.

3.1.2 Readers

3.1.2.1 The Role of Readers in EST Translation Aesthetics

As the subject of the translated text, readers play a leading role in the EST translation. The aesthetic value of the translated text can only be judged by the response of target readers. So the aesthetic acceptance of TL readers for the translated text also matters a lot during the process of translation, thus, a translator have to take the TL readers into serious consideration, for without their acceptance, the translated text will be worth nothing. Being the very end of the translation process, TL readers are the most important element to decide how the translating result is. In the history of aesthetic translation development, there are some translation theorists stressing the readers' role. The most famous maybe Nida's concept of "Equivalent effect", which highlighted the readers' role in the translation process and stated that translation process would not be completed until the TL readers finally accepted the translated text (Liao Qiyi, 1995:181). Or we can interpret it in this way, the quality of the translated text depended on the TL readers' response to it. According to Nida, the translated text should produce a response in a TL readers that is "essentially like" that in an "original" reader (Nida and Taber, 1969:202).

Besides, since around the 1960s, there has been a nearly built aesthetic translation theory, that is, reception theory or reception aesthetics, which begins to concentrate on the readers' role in translation process as well as the translated text itself, thus launches a new stage of translation study, reader-oriented translation, following the former two stages: author-centered stage and text-centered stage. There appear some outstanding representatives as German literary historian and theorists Hans Robert Jauss and Wolfgang Iser Jauss (1982:19) asserts that "in the triangle of author, work and public reader the last in no passive part, no claim of mere actions, but rather itself an energy formative of history. The historical life of a literary work is unthinkable without the active participation of its addressees." While in Iser's eye, the literary work has two poles: the artistic and the aesthetic, with the first one being the author's text, and the latter the readers', which must and only can be realized by the readers. So the work in nature is some kind of reader-text interaction. The reception aesthetics leads translation theorists to begin to study translation from completely new perspectives and with new research method.

But the readers' role is hard to control in the process of translation, for every reader has an aesthetic feeling totally different from others, for they have different social status,

working experience, life experience, and culture background and attitude towards life. So, it's a hard work for the translator to make every TL reader satisfied due to their respective characters. But he must try his best to make his translated text accepted by TL readers, pushed by which, he has to analyze the common points of the group of readers he will face: Are they children or the public or scholars or even experts?

As for EST translation aesthetics, the readers are workers with techniques or experts, in this field and so on. So while translating an EST article, the translator should fully considered such factors as the target readers' knowledge level and acceptance ability, so as to concisely convey the very message to them.

3.1.2.2 Requirements for the Readers of the EST Translation Aesthetics

3.1.2.2.1 Some Professional Knowledge on the Concerned Field.

As the aesthetic subject of the translated text of EST translation, a reader should have some knowledge in this field, in order to appreciate and understand the text better. If the TL readers know nothing about what is translated, it is almost impossible for the translator to explain the text fully. For example, if there is a text concerning the usage of a newly developed camera, and the translator just does an excellent job in the translation process, but with a group of readers without any knowledge on it even the exact name of an element mentioned in the text. By which can they be a judge? How should they accept the text? There is absolutely no way. So, they must have a background of the professional knowledge in the field concerned in the translated text they are reading or will go through.

3.1.2.2.2 Some Knowledge of the Original Culture

Arnold, a great translation theorist, required too much for the readers to be informed of the original culture. Of course, he referred to literature translation. But in EST translation, it's the same. Though EST articles don't depend so much on the culture, they can never get rid of its impact completely. So sometimes, it's necessary for the readers to know a little about the culture in which the EST original text generates. For example, if we come across an EST article named *How to use a robot in our daily life*, we should ensure we have known that the desire for daily used robots is common among Americans before we read the translation. Otherwise, we will treat the article as what the American treat "a white elephant" as.

To conclude, as readers play such an important role the translating process, a translator should take more serious consideration of them. Nowadays, translation theorists tend to research on the “the original text-translator-the translated text” line, which omits the role of readers. Obviously, with the turn of translation study to reader-oriented stage and the generation of the reception aesthetics, the translation theory field has realized the importance of readers. So, from now on, we can do more research on the “translator-the translated text-reader” line.

3.2 Aesthetic Objects of EST Translation

Aesthetic objects refer to the external objects involved in the aesthetic activities of human being (Liu Miqing, 1995:120). They are those external objects who are relative to the aesthetic subjects. For example, a piece of clothes will not become the aesthetic objects of yours until you see it and have comments on it or even buy it.

Translation is a kind of aesthetic activities, who aims at transferring the aesthetic feelings from the original text to the translated text as well as information. In the process of translation, there are two aesthetic objects: the source language text and the target language text, which is the same with EST translation, both of which possess certain kind of aesthetic values or properties. By “aesthetic value” is meant the intrinsic value of a works in pleasing and delighting the readers. Translation differs from other action of language aesthetic appreciation, it involves two languages. The SL without aesthetic value may possess certain information value which is called functional value, thus translation is needed. The functional value of the SL text could be transferred into the aesthetic value of the TL text after being translated (Liu Miqing, 2005: 86).

3.2.1. The Aesthetic Properties of Scientific-technical Writings

Scientific-technical writings are the independent style of writings developing with the development of science and technology, which includes works on science and technology, scientific papers, reports on science and technology, experiment reports, technical criterion, instructions of engineering technology, scientific and technical literature, and common scientific and technical reading materials, and other writhing or speaking materials concerning science and techniques (Chen Hongwei and Li Yadan, 2004:242).

Liu Miqing also made a definition for EST “EST (English for Science and Technology) is a significant genre of English, arousing the general attention and research

internationally since 1970s” (Liu Miqing, 1998: 325). It came into being and developed accompanying the appearance and development of science and technology (Chen Xin, 1999: 230). EST in a broad sense covers any piece of written or spoken English dealing with science and technology (Dai Wenjin, 2003: 38). Specifically, EST can be classified into seven categories:

- (j)Scientific and technical writings and monographs, experiment reports and schemes;
- (ii)Various kinds of information and written material of science and technology;
- (iii)Operative means including the structure description and operative instructions of instruments, machines, tools and SO on;
- (iv)Talks, speeches at conferences and conversations concerning science and technology;
- (v)Commentaries in scientific and technological films, videos and other audio materials, etc.
- (vi)Reports Oil the inventions and discoveries of science and technology;
- (vii)Science fiction (Chen Xin, 1999: 230).

Accordingly, the corresponding Chinese scientific and technical materials can be classified into these seven categories, too.

In this thesis, what we deal with are all written materials.

Scientific and technical writings, as a special kind of writing style, have their own specific characteristics, no matter in English or in Chinese, which are concluded as following (Feng Zhijie, 1998:5-6):

- Impersonal;
- Formal in mode of speech;
- Objective and accurate in statement;
- Standard in language;
- Unadorned in stylistics;
- Strict in logic;
- Concentrated in technical terms;

We can compare it with artistic writings. Following is Alfred Tennyson’s poetry describing the sea:

Break, break, break,

Oh thy cold gray stones, O sea!

And I would that my tongue could utter

The Thought that arise in me.(Cheng Zhaowei, 2007.7: 100).

Although it is a poetry Tennyson wrote for his friend who just passed away, it is very beautiful in sound form and the so-called image, thus can endow the readers with certain kind of aesthetic feelings, while the sea is likely to be like this in a scientific and technical article:

A sea is smaller than an ocean, and may be more or less landlocked.

Obviously, this one is lack of some beautiful feelings but concise in form and precise in content, which are exactly the features of the scientific and technical writings. So we can conclude the common characteristics shared by all scientific and technical writings just as the above Feng Zhijie does.

But, at the same time, we must notice the difference between Chinese and English in scientific and technical writings, too. As for that, there are mainly the following points:

- (1) A Chinese scientific and technical word always possesses one single and fixed meaning, while an English word has wider and more than one meanings;
- (2) There is a massive use of passive voice in English scientific and technical writings, while in Chinese articles not.
- (3) The sentences in English are always long and complicated ones, while in Chinese they tend to be short.
- (4) In English those prepositional phrases and nonrestrictive verb phrases are intensively used, while in Chinese not.
- (5) There are many differences on sentence sequence, tone, and others.

To conclude, English and Chinese scientific and technical writings share some common aesthetic properties, just with different expressing forms. Following the author would like to describe their common aesthetic values simply.

In the EST translation theory study, such a phrase has been raised “the tropism of aesthetics”, Just as Yang Zaochun said, “In order to make our translated articles more readable and more comprehensible, we must also realize some unique principles of the tropism of aesthetics in EST translation, because the process of translation is in fact a process of the tropism of aesthetics” (Yang Zaochun, 2006: 273), which has something to do with the aesthetic properties of scientific and technical writings. Following are some concluded by those scholars on it.

3.2.1.1 Beauty of Accuracy

Accuracy is of overwhelming importance for EST translation, because the functional value of EST translation consists in providing scientific and technical information in SL

for scientists and technicians in TL. EST translation may lose its “soul” by losing “accuracy” (Wen Lingling, 2000: 30). The beauty of accuracy in EST translation is mainly manifested in the correct choice of diction. Thus, vague, ambiguous, and far-fetched expressions, which hinder even damage effective transfer of scientific and technical information, should be avoided. This requires a translator to pay particular attention to both connotation and denotation of a word in a specific context based on full comprehension of the original text.

E.g. (1) I'm leaving in a couple of days.

我过几天就离开。

(2) There are one hundred and eleven components in this machine.

这台机器中有111个零件。

After a careful comparison of the above two sentences, we can easily figure out that they are used in different styles, with the first being used in common daily writing styles, while the second in a scientific and technical one, for in both Chinese and English we just can not use these vague words as “a couple of” (几个) in an scientific and technical writing, while in other styles it is not so firmly forbidden.

3.2.1.2 Beauty of Conciseness

EST translation is to manifest scientific and technical writings in another language. The core of scientific and technical language is “informative” and such language stresses the clarity in statement and conciseness in expression. On the one hand, the potential readers of EST translation are mainly professional workers and those who temporarily need information in this area; on the other hand, scientific and technical writings usually carry a vast amount of information. These two factors determine what such readers need is not the careful appreciation of the translation but obtaining the needed information accurately and rapidly. Consequently, the beauty of translation not only depends on the accuracy of the content, but also the conciseness of the form. Translators are required to use the most concise words to deliver sufficient information. Thus today, there exists a tendency in the field of EST translation, that is, from the complex to the simple. There is great distinction between English and Chinese; as a result, it is difficult to correspond completely the SL to the TL. On such condition, it is necessary for the translators to figure out the intention of writer of SL text, integrate the language in the process of translation, and try to use concise expressions to convey the accurate information. For instance:

E.g.1: The original version: It is a common property of any matter that is expanded when it heated and it contracts when cooled.

Chinese version 1: 任何物质，如果遇到热，它就会膨胀，如果遇到冷，就会收缩，这是共性。

Chinese version 2: 热胀冷缩是所有物质的共性。

E.g.2: The original version: This technology provides the means for identifying and isolating genes controlling specific characteristics in one kind of organism, and for moving copies of those genes in another quite different organism, which will then also have those characteristics.

Chinese version 1: 这项技术提供了将某一生物体内具有某一特性的基因辨别及分离的手段，同时，还提供了将该基因复制并导入另一异体生物体，使其具有导入基因特性的方法。

Chinese version 2: 转基因技术提供了以下的方法：在某种生物体中鉴别和分离出控制某一特性的基因，复制这些基因，并将复制基因导入另一种完全不同的生物体，而使该生物体也同样具有这些特性。

It is self-evident that anyone can perceive the beauty of conciseness from the Chinese versions 2 of the above two examples. They perfectly represent the information of the original and cost readers least efforts to understand them. Thus it can be seen that EST translation strives for “beauty in truth” together with beauty of conciseness in expression.

As for the English, the author would rather omit it incase of repetition, for in Chapter Six while analyzing the translation methods of sentences, the syntactic features of EST are given in details, that is, the EST sentences are always featured by massive use of passive voice, nomination, long and complicated sentences, and so on, which are the direct proof for its conciseness in form.

3.2.1.3 Beauty of Logic

The most distinctive beauty in EST is the beauty of logic, because the key function of EST is to describe the objective things and their evolutionary laws, which most embodies the abstractness and logic of thought. Both the description of the objective world and the expounding on the scientific thought must adopt certain thinking forms and laws, namely, thinking logic. Therefore scientific article claims much more distinctive logic, or it will be doomed to fall into pseudo-science. In this way, it goes without saying that strict in logic is

a distinctive feature of EST writings (Feng Zhijie, 1998: 22). Logic is one of core qualities that distinguish technical texts from other text types. Lado Julgi, famous Hungarian translator, holds that translation is the action of logic and the TL text is the product of logical action (Bao Fatong, 2003: 69). Generally, sentence structures in EST are not fully compact, but coherent and connected. Translators are required to organize TL texts according to the logical relation of SL texts. The following are the best examples of beauty of logic in EST translation.

The original version: The harder the rock, SO much the more difficult is the work of drilling, though few types are sufficiently hard to be allowed to remain after blasting without a lining of masonry or concrete.

Chinese version: 岩石越坚硬, 钻孔就越困难。尽管如此, 很少有哪种类型的岩石在爆破后还具有足够的硬度, 而不再需要用石块或混凝土衬砌了。

The sentence above contains multiplied logical relations. The former “the harder... the more...” is a comparison; the latter “though” introduces a compromise adverbial clause; the last “sufficiently hard to be” shows the degree. The translator, rendering it appropriately and making it an integral whole, makes all the logical relations of the sentence well demonstrated and reflects the beauty of logic in EST translation.

Besides, from the Chinese translated version we can find out that, Chinese scientific and technical sentences are also in logic, just that English is hypotactic, so it need many link words to put the structure in logical sequence, while Chinese is paratactic so it does not need many link words for the logical connection. “for Chinese and English”, as Eugene Nida (1982:16) points out, “perhaps one of the most important linguistic distinctions is the contrast between the hypotaxis and parataxis. In English and in most Indo-European languages, a great deal of subordination is clearly marked by conjunctions such as, if, although, because, when, in order to, so, and so that. One may, however, communicate essentially the same concepts by means of parataxis; that is to say, placing two propositions together without marking the relationship but indicating by content what is the evident relationship.” So we can conclude that both Chinese and English scientific and technical languages have the aesthetic values of logic, whose expression form of logic are different from each other.

3.2.2 The Role of the Aesthetic Objects in EST Translation

In EST translation, there are two aesthetic objects, both scientific and technical texts, with the original text being in English, while the target text in Chinese. To produce a good quality translation, the translator must fully appreciate the aesthetic beauty of both the two texts, and find a good way to converse the beauty of the original into that of the final.

3.2.2.1 The Role of SL Text in EST Translation

As the original text, to be translated, the SL text is just like an art, which must be carefully appreciated and analyzed, and be expressed as completely as possible. So, the translator has to be quite familiar with the English scientific and technical text's characteristics, and make proper and correct judgment about it, which requires much aesthetic ability and insight from the translator, who should carry out the translation activity on the basis of a full and intensive analysis, understanding and conversion of the aesthetic properties of as well as the information carried in the original EST text with a good grasp of the differences between Chinese and English.

3.2.2.2 The Role of TL Text in EST Translation

As the final product of the translation process, the TL text is of great importance, for it is the only objective matter by which we can judge the translation effect. So, to achieve a good response from the TL readers, the translator must commit lots of efforts and time on the production of the TL text, so as to endow it with the most correctness, aesthetic properties as well as the exact information.

Chapter Four Translation Aesthetics and Criteria of EST

4.1 Translation of Scientific and Technical Terminology

Terminology is, in a certain sense, the most important feature of scientific and technical writings. According to Peter Newmark, “technical translation is primarily distinguished from other forms of translation by terminology, although terminology usually only makes up about 5—10% of a text” (Newmark, 1988:151). From the above, we can see that the translation of EST Terminology is a part of great importance in the translation of EST writings. So, to make a good translation, it is of great necessity of a translator to examine the characteristics and aesthetic properties of EST Terminology. Only if the translator has a good understanding and mastery of the EST Terminology and their aesthetic properties, can he figure out a proper and correct translation criteria and method for EST Terminology, based on which, he can move a further step to produce a good quality translation.

In this section, the author will discuss from following three aspects: the classification of EST Terminology, the formation of EST Terminology, and unification of Translation in scientific and technical words. In this process, various translation methods and criteria will be given to different categories, based on the analysis of their respective aesthetic properties.

4.1.1 Classification of EST Terminology and their Respective Aesthetic Translation Criteria.

Vocabulary in EST can be roughly divided into three main categories, namely, technical terms, semi-technical words, and non-technical words (Fang Mengzhi, 1998:28). Specific use of technical terms, wide use of semi-technical words, and logical use of non-technical words are the prominent characteristics of EST vocabulary. Obviously, by “terminology” we mean the first two categories.

4.1.1.1 Technical Terms and their Aesthetic Translation Criteria.

Technical words refer to “words that can exactly explain definite concepts in a specific field of science and technology” (Fang Mengzhi, 1998:28). With the development

of science and technology, new terms are needed to define new phenomena and to explain new things and processes. As a result, suitable technical words have to be invented. Scientists have been extending vocabularies of their subjects for centuries and each subject has its own bank of terms with precise, narrow meaning (Chen Xin, 1999: 231). For example, such new technical words as Internet, E-mail, websites, surfing and googling came into our lives along with the fast growing of information technology in the twentieth century. In fact, technical words merely make up a small part of a technical text, in spite of which, they are of quite an importance to the EST articles. So, the research of their aesthetic properties and translation criteria is thus being important.

They are different from everyday English for they are independent of context thus always have narrow, precise meanings unique in one field, that is, one such word corresponds to one concept, for which reason, they are unlikely to cause any ambiguity and comparatively easier to be translated as far as the translator has a good knowledge of their professional field. So, the aesthetic properties of technical terms, as we can conclude, are preciseness, conciseness, corresponding to those of scientific-technical writings, for which reason, the translation criteria for their translation should be faithfulness both in meaning and in form.

4.1.1.2 Semi-technical Words and their Aesthetic Translation Criteria.

But, most of the EST vocabulary is semi-technical and non-technical words. Semi-technical words are “context-dependent words which occur with high frequency across disciplines” (Fang Mengzhi, 1998:33). They have different characteristics from those technical terms. On the one hand, “some ordinary words may carry different meanings when used in scientific and technical writings, that is, meanings of these words in their technical use are likely to differ from their non-technical meanings” (Liu Miqing, 1998: 326). On the other hand, “meaning of certain ordinary words may vary from one discipline to another, such words are context-dependent words which occur with high frequency across disciplines” (Liu Miqing, 1998: 327). For example, the word “cell” whose meaning in ordinary life is “小室”, means “细胞” in biography, “电池” in electrology, and “隔板” in architectonics; and the verb “feed”, means “进食” in daily use, while can be translated into “供电”, “加水”, “添煤”, “上油”, “进刀” and so on. Following are some examples in sentences,

E.g.1 She feeds the cow with bran.

她用麸皮喂牛。

E.g.2 This motor can feed several machines.

这部发电机可以给几部机器供电。

E.g.3 We use pumps to feed fresh water into the boiler.

我们用抽水机给锅炉加水。

E.g.4 They use mechanical stockers to feed coal into the furnace.

他们用自动加煤机给炉子添煤。

E.g.5 We can feed the oil into the bearing in several ways.

我们可以用几种方法给轴承上油。

E.g.6 Tools carriage supports and feeds the cutting tools over the work.

刀架托住刀具对工件进刀。

Despite their differences from those technical terms, their aesthetic properties are also preciseness in meaning and conciseness in form, so the translation criteria for them are also faithfulness, as well as that in their translation we must take the specific scientific field or the context into consideration, which demand the translator possess some inter-discipline knowledge in various scientific and technical fields and their respective terminologies both in English and Chinese.

As to those non-technical words in EST writings, their meanings are dependent on the specific sentences and passages in which they are used, so the author would rather leave them to be discussed in the part of the aesthetic translation of body of EST articles right before the discussion of aesthetic translation of sentences, paragraphs and passages, together with which two the body is composed.

4.1.2 Formation of EST Terminology and their Respective Aesthetic Translation Criteria.

As a variety of the English language, EST is considered as a scientific and technical information-carrying variety. Thus more information with fewer words may be a characteristic, which is reflected in the word formation of EST vocabulary. "A large proportion of EST vocabulary is created through numerous word formation devices, in particular, new words that are created to refer to emerging items and concepts" (Liu Miqing, 1998: 327). So a mastery of the formation techniques will benefit us a lot in EST translation. According to the statistics made by Leech (1980), words from deviation account for 17.5% of all new technical words, with composition 27%, shortening 9%, and blending 6%. Described following are the most frequently used word building devices

nowadays: compounding, blending, affixation and acronym, and their respective aesthetic translation criteria.

4.1.2.1 Compounding and its Aesthetic Translation Criteria.

Compounding means the process of word formation where two or more than two existing words (or sometimes one letter is used instead of one word) are combined according to a logical sequence to create a new word, which mainly take four forms: composition of two or more words, such as black hole (黑洞), electrical source (电源); composition of one capitalized letter and nouns, such as U-tube (U形管); composition of Greek word and noun, such as alpha activity (α 放射线); composition of two words with the connector of “and” such as wheel and axle (轮轴). Through the above compounding, ordinary words are assigned with new meanings and actually become technical terms. From the above we can also find out that the compounded words are mainly in two forms, with or without a hyphen, such as fallout (放射性尘埃) vs. heat-wave (热浪).

Most compounded words of EST are translated with literal or word-for-word translation, that is, to combine the meaning of the morphological elements together, which is obviously to obtain the preciseness of meaning, and conciseness of form that feature scientific and technical writings.

So such a conclusion can be arrived at that their aesthetic translation criteria should be:

First, faithfulness in meaning or preciseness;

Second, faithfulness in form or conciseness;

Third, smoothness as the basic requirement of a written material.

4.1.2.2 Blending and its Aesthetic Translation Criteria.

Blending is a word formation process in which a compound is formed by blending the former part of a word with the latter part of another, after which the blended word will possess both the two words' forms and meanings. For example, smog=smoke+fog 烟雾, escalift=escalator+lift 自动电梯. These words tend to be translated with literal or word-for-word translation by combining the original meaning of the two elements together to be a word group with a modifier and the modified, which is similar to compounding but with a more concise form thus is more popular with various technical workers or specialists.

This kind of words also possesses the aesthetic quality of preciseness and conciseness, thus their translation from English to Chinese should follow these criteria:

First, faithfulness in meaning, or preciseness;

Second, faithfulness in form, or conciseness;

Third, smoothness in sequence.

4.1.2.3 Acronym

Acronyms are extensively used in scientific and technical English, owing to the fact that some of the words in EST are too long, as a result of which, acronyms are used to express ideas in a precise, clear, and simple way for they can avoid ambiguity and misunderstanding, for example, laser (激光), a typical frequently used acronym, stands for “light amplification by stimulated emission of radiation”. Another well-known example is DNA, which most people have heard of, but few know that it stands for “deoxyribonucleic acid (脱氧核糖核酸)”. But there exists one phenomenon that the same acronym may carry different meanings, such as LVP can refer to low-voltage protection (低压保护), left ventricular pressure (左心压), or launch vehicle programs (运载火箭计划), and MA can refer to machine account, machine accountant, manufacturing assembly, map analysis, mechanical advantage, mental age, mill annealed or milliamper, and so on. To avoid a misplacing of the proper meaning, the translator must have a good grasp of the knowledge in various fields in which the exact acronym is used.

As for acronyms translation, literal or word-for-word translation is always applied, in which the word is first reverted to its original form and then put into the corresponding Chinese words, which is first aiming to keep the preciseness of it and then the conciseness, as well as the smoothness of course.

So, to conclude, the translation criteria for acronyms are:

First, faithfulness in meaning or preciseness;

Second, faithfulness in form or conciseness on the basis of the first;

Third, smoothness in sequence as the final touch of a translation.

4.1.2.4 Affixation

Affixation refers to form new words by attaching a prefix or suffix to existing words, which becomes a quite important way to create new words in EST due to the great attaching ability of such newly formed scientific and technical affixes as bio- (生命、生

物), thermo- (热), -mania (热、狂). As the affixes bear specific meanings of great clarity, Affixation is essentially the most useful tool for understanding technical words, for the words formed in this way are much more than those formed in other ways. Many long EST words can be translated with the analytic method, for example, barothermograph = baro (气压) + thermo (温度) + graph (记录器): 气压温度记录器.

The word “analytic” is mentioned in the last paragraph, by which is meant to revert the original form of the affixation word by analysis of the affixes born in it, in which process the key point is to be familiar with all the affixes’ meanings and find out all the affixes in the word so as to keep the correct and complete meaning of word. From the above, the translation criteria of affixation come as following:

- First, faithfulness in meaning, or preciseness especially completeness of it;
- Second, faithfulness in form, or conciseness on the precondition of the former one;
- Third, smoothness in sequence.

4.1.2.5 Borrowing of some Proper Nouns

Many scientific and technical words are formed through borrowing some proper nouns already existing, including names of persons, places, brands, organizations, and so on, which are always translated by transliteration or free translation with a note. For example, Xerox, originally an American firm name, is now a common scientific word which means “静电复制”, which further gives birth to such words as to Xerox, xeroxer, and Newton, which is the name of the great physical scientist who founded the classic mechanics, is now a unit of mechanics and so on. “Borrowing” is viewed as one of the three aesthetic properties carried by the English scientific and technical terminology by Mao Ronggui in his famous work *Translation Aesthetics* (Mao Ronggui, 2005:452). As for their translation, translators tend to use transliteration as with the word “Newton” which is aiming to preserve the syllable form of the former word, or free translation as with the word “Xerox”, which is aiming to preserve the exact meaning of the word. So, the translation criteria form as follows:

- First, faithfulness in form (transliteration) or in meaning (free translation);
- Second, smoothness in sequence.

4.1.2.6 Their Common Aesthetic Properties and Translation Criteria

Corresponding with the features of EST articles, these scientific and technical

terminologies share some common aesthetic properties, that is, preciseness in meaning, conciseness in form, , and also smoothness in sequence, though each group carries its respective features.

To conclude, the author would like to summarize it in two aesthetic criteria as following:

- I. Faithfulness in form and/or meaning;
- II. Smoothness in sequence.

4.1.3 Unification of Translation in Scientific and Technical Terminologies

As the rapid development of science and technology, a great number of technical words come into being, which are more and more widely and frequently use in the world, for which reason, the unification of translation in scientific and technical terminologies is raised to be discussed more. Following described are some main criteria in unification of translation in scientific and technical terminologies, according to Chinese customs, translation tradition, and the wholly trend of the translation of names, which are, transliteration, free translation, combination of transliteration and free translation, image translation.

4.1.3.1 Transliteration

It is usually used to translate names of people or places, as well as some English words which have no corresponding Chinese words. Following are some examples:

- | | |
|----------------------|-----------------------------|
| A names of people: | Watt 瓦特 |
| | Ohm 欧姆 |
| | Newton 牛顿 |
| B names of places: | Canada 加拿大 |
| | Paris 巴黎 |
| C calculative units: | Volt 伏特 (unit of voltage) |
| | Ampere 安培 (unit of current) |
| | Joule 焦耳 (unit of power) |
| D others: | morphine 吗啡 |
| | coffee 咖啡 |

Being not so easy to be understood, these translations have become comparatively common version and been accepted all over the country after being widely used for quiet a

long time. From the translation method which is adopted and the final translation version, the aim is obviously to achieve the faithfulness in syllable form, so give birth to the following translation criteria:

First, faithfulness in syllable form;

Second, faithfulness in morphology ;

Third, smoothness in sequence.

As for faithfulness in meaning or preciseness of meaning, it can be achieved after the translated version is commonly accepted and bears the exact meaning it is endowed with.

4.1.3.2 Free Translation

Free translation is the method in which an English word is translated into a corresponding Chinese word according to its meaning. Comparatively this kind of translation is more easily to be understood and accepted, for it has so obvious a meaning, for which reason, the translator should try to apply this translation method in name translation.

For example, radio 收音机
 bicycle 自行车
 Jet 喷气式飞机

This group's translation can be seen as a simple match between the Chinese word and the English word for the same already existing object, which is to preserve the referential meaning of it thus put the form in the second place.

So, their translation criteria should be: faithfulness in meaning.

4.1.3.3 Combination of Transliteration and Free Translation

This method is usually achieved through two ways, that is, transliteration +a word featuring its characteristics, and one part with transliteration while the other part with free translation.

A. transliteration+a word featuring its characteristics

Beer 啤酒

Flannel 法兰绒

Cigar 雪茄烟

B. one part with transliteration while the other part with free translation.

Motorcycle 摩托车

Einstein equation 爱因斯坦方程

Neon sign 霓虹灯

Being a combination of the above two, the translation criteria for this group are:

First, faithfulness in syllable form and meaning;

Second, smoothness in sequence.

4.1.3.4 Image Translation

By “image translation” we mean to translate the English words which use letters or words to describe some image into some concrete Chinese corresponding images. It is not transliteration or free translation, but a complementary translation method to them two. Following there are some examples:

T-plate 丁字板

Zigzag road 之字路

Cross-wire 十字线

U-pipe U形管

Z-beam Z字梁

U-bolt 马蹄螺栓

X-type 交叉形

Z axis Z 轴

Y alloy Y合金

The first part and second part of the translated version indicate the translation criteria for this group:

First, faithfulness in form and meaning;

Second, smoothness in sequence.

4.1.3.5 No more New Translations for those English Words which already Have their Corresponding Chinese Words with a Long History.

Chinese has a long history, so many names for animals, plants, places, and others already exist. As for these words, which can correspond to a particular English word, will be determined as the final Chinese translation version though they are not sharing any similarities in form or meaning with the original English words. For example, tin plate in English must be translated as “马口铁” in Chinese, and the plough as “北斗星”, for the Chinese have already gotten used to these already used names.

The translation criteria are reflected from the above translation method, that is, faithfulness in meaning.

4.1.3.6 Continuing to Use those Nonstandard Translations.

As for those names which are established by usage, owing to their wide, frequent usage and common acceptance, we tend to continue to use them, instead of making translation with transliteration or free translation. For example, Greenwich is still translated as “格林威治”.

From the above, we can see that, the scientific and technical terminologies of various fields have their own translation methods, due to which, we should apply the unified version while doing translations, in order not to cause confusion for the target readers in the understanding of the translated information. For example, “laser” (激光) was once translated as “莱塞”, or “镭射” by some translators, which can easily be treated as two different things by readers who aren't informed of it. So, while doing translation, the translators should apply the popular version instead of the familiar one, so as to produce a high quality translation version.

So, on the basis of the all above, we can now arrive at a unified conclusion for the translation of the scientific and technical terminologies, that is, while translating a technical word, to express their aesthetic properties fully, a translator must follow these criteria: faithfulness in both form and meaning, absolutely, but from the last part of this chapter, we have finally found that before a faithfulness standard, the unification must come first, for the sake of uniqueness in the communication process.

So, three criteria have been settled:

First, unification of the terminologies;

Second, faithfulness in syllable or word form, and meaning;

Third, smoothness in sequence, which is of less importance for the object is a word or phrase.

4.2 Translation of EST Titles

Scientific-technical articles are those which concentrate on common science knowledge and professional knowledge on science and technology, which includes not only the highly professional articles that dissertate high and new science and technology, but also those reading matters which introduce science-popularization knowledge and

scientific- technological news.

With the coming of the knowledge-intensive economy, the demand for the translation of EST which is becoming more and more popular is getting higher and higher. If we treat the subject of an article as the soul of it, its title must be regarded as the vessel that is holding the soul, for a good title can reveal clearly or draw the outline of the author's aim and attitude as well as the theme and main content of the article in the readers' mind, which can attract them to read and guide them in reading this article. If an article is a piece of goods, its title should be the advertisement that aims at attracting and persuading its expected readers to go through it with interest and some already set purpose. The same is true with the EST articles. The original titles of EST articles are the inspissations of its gist and soul, whose translated Chinese version should also meet the above requirements.

As the advertisement or logo of some certain writing, a title requires more for aesthetic properties than the article does, for it shoulders more responsibility to attract readers than just to transfer the information. So, besides to be highly general about the content of the article, it must be interesting and attracting enough to the article's expected readers, in other words, it has to be endowed with some kind of aesthetic properties aiming at its readers.

In this chapter the author will concentrate on from the perspective of aesthetics how to improve the quality of the translation of titles of EST articles, on the basis of a linguistic comparison between the original and its translated version.

4.2.1 The Main Forms of EST Titles and Their Translation

The titles of EST articles are mainly in three forms, that is, words, phrases and sentences. Following the author would like to describe the three forms one by one, in order to be well prepared for the exploration into their respective aesthetic properties.

4.2.1.1 Titles in Nouns

To correspond with the characteristics of EST writings, which is to be precise in meaning and concise in form, the titles of EST articles are sometimes put into a noun word, for example, Flight, or, The Moon, The Helicopter and so on. These words are usually the keywords of the writings, which can inform the readers of the theme and subject of the article, and are concise enough for the readers to search it out easily who are in urgent need of it. So, in the translation of these titles, the translators should stick to the criteria of

faithfulness both in form and meaning by literal translation.

But, there is another kind of such titles, which seems not faithful to the meaning of it, for example, The “Mouse”, with these quotation marks, can produce some kind of mysterious feeling in the readers’ mind, and can also give some implication about the specific style of the body articles which should belong to such less formal kind of styles as common readings or newspaper reports. As for their translation, the translator should also pay attention to the style of the articles, to be sure to be faithful with the specific style of the original articles in which the translation activities are carried on. So, “得体” is an additional element which should be taken into consideration while doing translations, which, I would rather refer to it as faithfulness in style or stylistic faithfulness.

In short, the aesthetic translation criteria for EST titles in noun forms should be concluded to be faithfulness in form, meaning, and style.

4.2.1.2 Titles in Phrases and Sentences

As for the EST titles in phrases and sentences, Yang Genpei is in agreement with Zhang Lixin in that “titles of EST articles are always in phrases rather than in sentences, which will be in five structures after being translated into Chinese: the coordinate, word group with a modifier and the modified, the verb-object, the declarative and the interrogative. Following are the description of them.”(Yang Genpei, 2008 (4): 121-123).

The coordinate. Titles in the coordinate structure of EST are always composed of two or more components which are of equal importance and connected by the link word “and”. While being translated into Chinese, these components can be translated by literal translation, while the link word between them can be translated as “和”、“与”、“以及” or “及其” and so on, for example, The Spaceship Shuttle and Geological Remote Sensing which is translated as “航天飞机与地质遥感”, and Orchids and Insects as “兰花和昆虫”. This kind of titles, clear and simple, projecting the keywords, makes it convenient for the readers to find, classify, and choose.

Word group with a modifier and the modified. This kind of titles is among the most commonly used types of Chinese scientific and technical titles. In English, it can be in various structures, with one point in common, that is, there is only one headword with such modifiers as prepositions, indefinite verbs, participial phrases and so on to explain and modify it. For example, Tips for Selecting ‘Sun proof’ Sunglasses which is translated as “选购‘防日光’太阳镜的忠告”, and the difference between a brain and a computer as “人脑与电脑的不同”. The headwords in the above examples are respectively “Tips(忠

告)”and “difference(不同)”, whose modifiers have quite different places and features in English and Chinese. This kind of titles put more emphasis on the keyword than the coordinate, and thus can give the readers a clear picture of the focus and aims of the articles.

The verb-object. The verb-object and preposition-object structure can always be translated into the verb-object structure in Chinese, for example, On the Units of the Equilibrium Constant which can be translated as “试论平衡常数的单位”, and Using the Brain as “使用大脑”. In the first example, the preposition “on” is translated as “试论”, which can also be translated as “浅谈”、“初探”、“小议” and so on, which kind of translation endow the readers with a formal and precise feeling, thus correspond to the features of scientific and technical articles, and are used as titles of comparatively highly professional articles.

The declarative. The declarative are used as titles both in Chinese and English, when a word or phrase can not carry all the information that should be transferred. Sentences as titles can express a more complete meaning, inspire much faster and closer imaginations of the readers. The declarative is the first choice in Chinese scientific and technical articles, for example, it's not “All in the Genes” which is translated as “基因并非包含一切”, while Body Tissue May Soon Repair Damaged Hearts as “人体组织不久可以修补坏死的心脏”.

The interrogative. Nowadays, more and more EST titles and their translations are the interrogative sentences, which win more attentions unexpectedly. We just wonder, why? Because nothing but the fact that they can inspire the readers' curiosity and desires for learning while coming across some problems, for example, What is a Computer?, which is translated as “电脑是什么?”, and Trip to Earth Core: Myth or Reality? as “地心旅游: 神话还是现实?”.

For short, whichever structure the translated titles may be, the criterion of establishing a title should be, firstly, to convey information of an article to the readers by using highly-condensed summarization, and secondly, for the information to be easily found, classified and chosen by the readers, and on the basis of not departing from the original meaning or not cheating on the readers, to attract the readers in a greatest extent. The latter point is winning more and more attentions from those scientific and technical articles' writers and translators, with the fast development and popularity of science and technology.

4.2.2 Titles and the Aesthetic Properties of Their Translation

From the above description and analysis, we can find a fact that there are various kinds of EST titles and their translations, which have their respective features. These features which can endow the readers with different feelings are caused by various aesthetic effects.

Although scientific and technical articles always give the readers a feeling of formalness and complicatedness, a completely new title can get them relaxed from the tense psychology, make them change into the reading of the content. Whether in English or in Chinese, a good title possesses some kind of aesthetic effects in its structure, which can lead the readers to imagine about the content and its deep meaning. When and only when their imagination starts to work, the title can further lead the readers into some certain kind of atmosphere, and thus attract the readers' attention as much as possible. As a popular saying goes, a good title is half way to the article's success. The aesthetic effect coming from a good title can endow the readers with an aesthetic feeling, which further urges them to read forth to pursue the source of this beauty. While discussing "the aesthetic objects of translation", Liu Miqing mentions that "the various aesthetic elements which are specific to the original articles" include not only "presentational elements" or "the beauty in the language from", but also "non- presentational elements" or the temperament such as artistic conception, verve, vigor, mode, lingering charm and style and features" of the expressing form, and so on (Liu Miqing, 2005: 222-224).

Following the author will explore into the aesthetic effect of the EST titles and their translation from both the "presentational elements" and the "non- presentational elements".

1. Beauty of simplicity. Lots of EST titles, simple and always keeping to the content, though without any shining words or specific expression structure, can endow the readers with an open-and-shut feeling, which is the very simplicity, most likely to be ignored but the most long-lasting beauty. The author just take the title The structure of the human brain ("人类大脑的结构") for an example. This title is translated by literal translation, which gives prominence to the emphasis from the perspective of the presentational elements, for "structure" and "结构" are respectively used as preposition in English and postposition in Chinese, which correspond to the traditional ways of English and Chinese to emphasize keywords. While from the perspective of the non- presentational elements, the titles have made the general direction of the content clear to the readers, so as to be easy for the readers to make classification and choice. In addition, this article is based on scientific

research on and precise analysis of the actual structure of human brain, so this seemingly simple title can endow the readers with a very true and steadfast feeling, which renders the article into ones that must be read in order to make some study in this field.

Owing to the stylistic characteristics of scientific and technical articles and the traditional requirements for beauty, beauty of simplicity commonly exists in EST titles and their translation. Titles in various structures embody this kind of beauty to a certain extent, especially those in nouns and in the first three structures of phrases and sentences.

2. Beauty of elegance. This kind of beauty mainly exists in the structure of the Chinese versions. Which have the Chinese-specific old-time in presentational elements, while in non-presentational elements can arouse the readers' imagination and sympathy, endow them with elegant and meaningful beauty. Biological weapons date to classical age, whose original meaning is “生物武器追溯到古代”, which is lengthy and incomplete in structure, thus changed to “生物武器自古有之”, which makes it elegant in both sound and form, and will surely lead the readers to be interested to read further. There is another example, mathematics at forefront of gulf war, whose translation lay its beauty on the structure, to be “海湾传捷报, 数学居首功”, which adds much Chinese characteristics to the English beauty of simplicity, thus forms a kind of long-lasting beauty of elegance that appears more and more in the translated Chinese titles.

3. Beauty of novelty. Sometimes, in the titles, there will appear something out of our expectation or something opposite to our common knowledge, which will always interest the readers at their first sight, with the doubt that there must be something unusual or interesting. That is exactly the beauty of novelty. Here is an example, the midnight sun, whose Chinese equivalence is “午夜太阳”, which can surely catch the readers' heart and urge them to further explore the content and techniques of the article. The titles with some beauty of novelty always can stand out the keyword in presentational elements, while in non-presentational elements make the readers be shocked by the beauty existing in them.

4. Beauty of vitality. By “vitality” is meant being vivid or lifelike. For example, the title “smog discrimination between the sexes”, which is translated as “烟雾生‘眼’:性别搞歧视”. In the English version, nothing special except the word “discrimination” which can arouse some interest in the English readers' eyes but not in the Chinese's, and is translated as “生眼” in the Chinese version after the conversion of the aesthetic feelings. Such titles make the readers not help wondering in what way the smog can discriminates, and how will the author manage to explain it through. And still another one, a glimpse of the secrets of life, as “生命之迹一瞥”, can always lead the readers to be curious about how to for the author make this “一瞥” in the passage, for this word carries some kind of

vivid sense in the Chinese readers' eyes. So, to make good use of this kind of beauty, the translator must be familiar with the Chinese kind of beauty for vitality.

5. Beauty of formalness. This kind of beauty is always embodied by some big words and formal tone, which can give the readers a formal and serious feeling to believe that it is indeed something of great importance which they have to know. There is an example, trip to earth core: myth or reality?, which is translated as “地心旅游：神话还是现实？” from which we can figure out the features of this kind of titles, that is, keywords plus a colon or quotation marks to state the key point of view of the articles. In the presentational elements this kind of structure seems huge, serious but without any lengthiness, while from the non- presentational elements it can send to the readers some feeling of authority and royalty, which can persuade them to believe there must be something worth reading and should be read.

6. Beauty of convulsion. If the beauty of novelty makes readers surprised, then this kind of beauty t can have them scared. Just take the following title as an example, Hard to swallow? Worms could cure bowel disorders, whose Chinese version is “吞下去：蠕虫能治你的肠病”，which will surely shock most readers, with the scaring behavior of swallowing the worms that most people can not accept or even understand, which at the same time, will also arouse the readers curiosity about the concrete links between this two things, and how will the author connect them together.

7. Beauty of mystery. The beauty of mystery in titles can directly help to raise a big “why” in the readers' mind, which is the very reason they have to move on to read through the whole passage. Here are two instances, don't blame DNA, as “不是DNA的过错”，and it's not “all in the genes” as “基因并非包含一切”，which make the readers just wonder why to blame DNA, what fault has it made, what is this “all” actually refers to and how it is connected with genes, all of which can guide the readers read further into the content.

Due to their functions to transfer the information and attract the readers to read the articles, the titles of EST can be kind of flexibly translated. The great aesthetician Croce mentioned in his famous *Aesthetics Principles*, “translation must be reproduced.”^[18] So while dealing with the translation of EST articles, a translator can read the whole article first and then produce a totally different title which suits the target readers more. But, we must never forget another word by Croce “in EST translation, the content is always more important than the language form.”(Li Wenge, 2004: 35, 37). So, there must be some limit in the translation of EST articles, for they carry more responsibilities for the information than the form.

From the above, we can come to a conclusion as following:

First, faithfulness in meaning and form (or preciseness and conciseness);

Second, smoothness in sequence;

Third, faithfulness in style.

4.3 The Translation Aesthetics of the Body of EST Articles

After discussing the translation aesthetics of the EST terminology and titles, the author would like to move further to the most important part---the body of EST articles.

Following the body of EST articles will be analyzed on the levels of words, sentences and paragraphs and passages.

4.3.1 The Translation Aesthetics of Words in EST

In chapter three, we have described the translation aesthetics of the EST terminology, so, here the author will put more importance on the translation aesthetics of the ordinary words in EST writings.

As for the aesthetic properties of the EST vocabulary, Mao Ronggui propose his frame of reference, that is, “scientific and technical articles also have some kind of literary grace, whose wording has certain aesthetic bourn, which is borrowing, transformation and sophisticated.(Mao Ronggui, 2005. 11:452-472).

With borrowing referring to borrowing ordinary words into the scientific and technical terminology, which belongs to the part of terminology that we have discussed already, in this part the author will just concentrate on the translation of ordinary words in EST writings, for which the author will mainly describe the two aesthetic bourns proposed by Mao Ronggui in his famous *Translation Aesthetics* published in 2005.

In his view of point, there are three aesthetic bourns in the wording of EST writings, that is, borrowing which means to borrow an ordinary word to use as a new technical one, transformation, and sophisticated, with the first one talking of technical wording, we will just deal with the latter two.

In Mao Ronggui’s eye, one big feature of EST writings is being good at and being willing to perform the “conversion”. By “conversion” is meant to translate an ordinary word into the proper meaning suitable to the context. Following is an example:

All of the disciplines have changed so much in recent years that I can’t imagine people climbing over departmental walls and specialty boards so easily.

In the above sentence, the part “climbing over departmental walls and specialty boards” carries a special kind of aesthetic beauty which the readers can sense directly, just because of the conversion in the meaning of the two words: “walls” and “boards”. “wall”, whose original meaning is the concrete “墙壁”, is converted to be the abstract “屏障”, while “boards” whose original meaning is “木板、厚木材”, is converted to refer to “舞台”.

So, while translating, the translator must pay attention to the context of the words as well as their conciseness in form and preciseness in meaning, which is to pursue the “proper” meaning of it rather than the precise one.

Then we come to the last one “sophisticated”, which means to break the limit of the EST style, to add some vividness, visualness or something else to the accurate, scientific, concise writing style. For example, here is an article analyzing Tofu, in which there is such a sentence:

The original version: So long, chicken. Hello! Tofu!

The Chinese version: 再见，鸡肉。你好，豆腐！

We can feel the great difference of the two versions from those of a formal scientific and technical writing, or it is so active and attractive to the readers, which is just the special aesthetic feelings in this from.

So, while doing translation, the translator must be faithful to this kind of style change, which has great aesthetic values.

For short, we can arrive at the conclusion that, in the translation of the ordinary words in EST writings, the translator should keep himself:

First, be faithful to the meaning, form and style of it;

Second, be smooth in sequence.

4.3.2 The Translation Aesthetics of Sentences in EST

A sentence is the basic language unit expressing a complete concept. Every language has its own syntactic features, which covers a wide area in terms of modification, clause types, sentence construction, and so forth. Within this range, EST represents “obvious preference in its choice of certain patterns and structures.” (Herbert, 1987:23). EST, aiming at meeting the requirements of the communication by describing the contents of science and technology, usually has four main kinds of syntactic features, that is, the extensive use of passive voice, nominalization, long and complicated sentences and present tense, post-positioning of attributes, each of which has its own specific aesthetic properties. In

this section the author will describe these four syntactic features of EST and their translation aesthetics one by one, so as to decide the translation criteria for them.

4.3.2.1 Extensive Use of Passive Voice.

There are passive voice in both Chinese and English, which are quite different from each other. So, to produce a good E-C translation, no matter in what field, the translator should be demanded to be familiar with the respective usage and aesthetic properties of passive voice in English and Chinese, so as to make the aesthetic conversion as good as possible.

The most prominent characteristic on syntax in EST writings is that the passive voice is widely used. It is calculated that about one-third of the verbs in EST are in the passive voice (Chen Xin, 1999: 233). But this conclusion is first made by Crystal (1995:372).

It's interesting to notice that the actual incidence of passive voices in EST is a matter of dispute, especially nowadays, many of the experts on EST counsel against the use of passive voices. For example, Porushi (1995:216) calls that the scientific overuse of the passive voice "one of the most universal, persistent and damaging habits of scientific writing", and "once you mount on the passive voice bicycle, it is hard to get off." In spite of his point of view, his words can at least prove that scientists and engineers use passive voice much frequently than others, which is not for no reason. So, the translator should find out the aesthetic properties of it and make a good conversion to Chinese. Following are the aesthetic properties of passive voice in EST writings, or the reasons why they are so widely used.

Above all, without mentioning of the "doer", passive voice is clearer in meaning and more concise in structure, than active voice, thus it has the aesthetic property of clarity and conciseness. And also, the employment of passive voice tends to render the passage impersonal and objective, which is just the very requirement of EST, thus endow it with the aesthetic beauty of objectivity. Following are two examples:

E.g.1 The new technique is warmly welcomed.

E.g.2 People welcome the new technique warmly.

Obviously the second example possesses a clearer meaning and more concise structure, and without such a word as "people" which adds human elements in, sentence II obtains a better effect of objectivity.

The second advantage lies with the layout of the information. Usually in a sentence the subject carries the most important information of the whole sentence, which in an EST

sentence refers of course to the new techniques or newly coming out objects rather than human himself. So with a passive voice, the EST sentence can put the most important keyword in the first place and catch the readers' attention directly. Following are two examples for us to make comparison:

E.g.1 *People* get natural rubber from rubber trees as a white, milky liquid, which is called latex. *They* mix it with acid, and dry it, and then *they* send it to countries all over the world.

人们从橡胶树中获得天然橡胶。这是一种叫做“乳胶”的白色乳状液体。人们先将橡胶与酸混合在一起，将其烘干，然后再运往世界各地。

E.g.2 Natural rubber is *obtained* from rubber trees as a white, milky liquid known as latex. This is *treated* with acid and dried, before being *dispatched* to counties all over the world.

天然橡胶事一种叫做“乳胶”的白色乳状液体，它取自橡胶树。在运往世界各国之前，橡胶要经过酸处理和烘干。

Third, without the “doer”, the sentence with passive voice is shorter (in form and in meaning), which can show exactly the preciseness, conciseness, and compactness of the EST sentences. With the examples given above, the author would like not to present more.

On comparison, we can see that the above two passages contain the same information, but with totally different structure. The first sentence puts the “doer”- “people” in the first place, thus stresses the action of human and lacks some objectivity, while the second one chooses the opposite way, by the massive using of passive voice, masterly avoiding the disturbance from human side and showing the exact formality, objectivity and impersonality of EST writings.

But, in Chinese sentences, passive voice is not so frequently used, which may be due to the fact that Chinese possesses a paratactic structure which can omit the word “被” but not change the meaning, while English possesses a hypotactic structure, which must rely on the use of indicating words to show its logic relationship, which is also for the affect of simplicity, conciseness, preciseness and compactness.

E.g.1. Friction can be reduced and the life of the machine prolonged by lubrication.

润滑能减少摩擦，延长机器寿命。

E.g.2. Unless something is moved, no work is done.

除非某物体发生了位移，否则就没有功。

So, in the translation process, a translator must carefully examine the aesthetic properties of the original and convert them into the corresponding Chinese way. Thus, the aesthetic translation criteria should be faithfulness in meaning and form, and smoothness

as well.

4.3.2.2 Frequent use of Nominalization

The massive use of nominalization is one important feature of EST writings. According to Oxford Dictionary of Linguistics, nominalization means “any process by which either a noun or a syntactic unit functioning as a noun phrase is derived from any other kind of unit such as a verb or an adjective”. To make it simple, by “nominalization” is meant to transfer a verb or verb phrase or a clause into a noun or noun phrase with the meaning of that action. For example, to discuss the problem of education→discussion on the problem of education.

Nominalization is concise in structure, precise in meaning and logical in organization. The massive use of it in EST articles is decided by the characteristics of EST articles. EST articles require a lot for conciseness, objectivity, and formalness, and emphasize the existing facts rather than some certain action, for which nominalization helps a lot. Quirk once points out that “more complex grammatical correlates are to be found in the language of scientific and technical description: the passive is common and clauses are often nominalized” (Quirk et al, 1972:1251). Following the author tends to explore into the aesthetic properties of nominalization in EST, and try to conclude its aesthetic translation criteria.

First, brevity. One important function of nominalization is condensation, in order to achieve the effect of being brief. Nominalization enables not only combination of two or more short sentences to achieve conciseness and brevity, but also integration of pieces of information for more logical and precise expressions (Zhai Tianli, 2003: 46). So, the sentence will carry much information though it is simple in structure. Nominalizations in English are more often used than in Chinese, which is due to the fact that English people always try their best to omit some repetitious words to achieve brevity, especially verbs.. Thus, nominalization can make a sentence hold more information in a shorter length of texts in order to express more complicated ideas. Following is an example:

Engineering is required to conceive, design and achieve the conversion of the energy of a turbulent mountain stream into the powerful torque of an electric motor a hundred miles away.

The overstriking section is the content of the noun before them “conversion”, which should be expressed in one independent sentence or a clause and is largely briefed with the use of nominalization.

Second, abstractness. The process of nominalization is a shift from being general to being abstract (Fang Mengzhi, 1998: 87). Abstractness is one of the characteristics of logical thinking. As EST is primarily used to express logical thinking, or abstract thinking, nominalization is in the right position to meet the needs for scientific and technical communications.

In the *study* of the pathogenesis of hypertension particular attention was once directed to the adrenal gland. Before the *turn* of the last century, the adrenal gland was known to secrete a substance capable of raising the blood pressure and in 1904 epinephrine was synthesized. This led to an extensive *investigation* of the relationship between the adrenal gland and hypertension. In fact, *adrenalectomy* was carried out as early as 1414 for the *treatment* of hypertension but the patient was not benefited. In the forties and fifties, lumbar *sympathectomy* was carried out rather commonly for essential hypertension and in part of the case operated on, *adrenalectomy* was done at the same time. The excised specimens did not show any *abnormalities* in the adrenal medulla. Knowledge of biosynthesis and metabolism of catecholamines has not added to the *understanding* of the role of the adrenal medulla in the pathogenesis of hypertension.

在有关高血压的病因研究中,人们曾一度非常重视肾上腺。早在上世纪末期,肾上腺就被确认为能分泌致使血压升高的物质。1904年合成肾上腺素后,人们更加重视肾上腺和高血压的关系。事实上,早在1414年,临床上就尝试用肾上腺切除术治疗高血压,但病人未能从中获益。在40年代和50年代,交感神经切除术治疗高血压曾风行一时,其中部分病例也同时做了肾上腺切除。对这些切割下来的肾上腺髓质加以分析后,并未发现有任何异常。对儿茶酚胺的生物合成和代谢有比较详细的了解后,亦未能证实肾上腺髓质与高血压有任何直接联系。

The italic words in the English version are good examples for the abstractness of the sentences, and the passage, which is one proof of the formalness and scientism of the EST articles. .

Third, formalness. With the transformation of some information into a simpler noun or noun phrase structure, some kind of feeling of formalness arises in the readers' mind.

E.g. With the fast development of the chemical industry, the application of plastics in industry has become wider and wider.

随着化学工业的发展,塑料在工业上的应用日趋广泛。

With a simpler structure and fewer components but seemingly more and much deeper information, this is the very source of formalness.

Fourth, objectivity. Through the use of nominalization, the transformed noun or noun phrase becomes the subject instead of a "doer", which absolutely add to the objectivity of

the whole passage. Please read the following sentence as an example:

E.g.1 A study on it will do some help.

E.g.2 If you make study on it, that will do some help.

对它稍加研究，就会有所帮助。

The first sentence is obviously more obvious and formal than the second, for its omission of the human subject and the transformation of the clause.

After find out the aesthetic properties of the original, the translator should try to converse the properties into those of Chinese, in which the nominalization is always translated into verb, adjective, adverb and other kinds of word forms, for Chinese put importance on hypotactic rather than paratactic.

4.3.2.3 Frequent Use of Long and Complex Sentences

EST is often used to describe various concepts and processes that are relevant to each other, hence a great many modifiers, determiners, and various phrases may be involved in the description. In order to illustrate the internal characteristics of the subjects and the mutual relations among different subjects clearly, it is necessary in EST to use the long and complex sentences, in which some clauses may be embedded in other clauses. The adoption of long and complex sentences won't not only make the text reads redundant and tedious, but also attains the goal of compactness and accuracy. Here is an example:

The simple fact shows that the more of the force of friction is got rid of, the farther will the ball travel, and we are led to infer that, if all the impeding forces of gravitation and resistance could be removed, there is no reason why the ball, once in motion, should ever stop.

The above sentence, composed of 54 words, containing several clauses and connectives and the all the structures being well—knit and clear, though rather complex, is not difficult to understand. So it looks a little long from the perspective of sentence structure, but they are quite concise and clear in sense.

4.3.2.4 Post-positioning of Attributives.

It is very common in EST to have a post-positioning of attributives. In fact, such structure can be seen as reduced relative clauses, which can make a sentence more concise. In addition some kind of coherence may be implied between the related linguistic elements. For example:

The original version: Water is a substance essential to our life, and comes next to oxygen in importance.

The Chinese version: 水是我们生活中必不可少的一种物质, 其重要性仅次于氧。

Here lies a great deference between English and Chinese, that is, Chinese tend to put the attributives all before the noun they are modifying to make their relationship clear in meaning, while English prefer to locate them after the noun to pursue a kind of logic and concise beauty in structure. For this, we can decide which is better, which is worse, for that is just their respective way to transfer the information, or their specific way to express their own aesthetic beauty. What a translator can do is just respect it, and bears it in mind while doing translating, and try to make a good conversion between these two kinds of beauty. So faithfulness in meaning, form and smoothness is a must when doing translations.

4.3.3 The Translation Aesthetics of Paragraphs and Passages in EST

Following is a short EST passage and its corresponding Chinese translation.

The English version:

In this paper, the strength of concrete composites containing mineral admixtures is considered to include two parts: one is generated by cement concrete matrix, the other by physical and chemical effects of admixtures on concrete. On this basis, a new method is presented for evaluating strength-effect of mineral admixture on concrete. Furthermore, the water to binder ratio, content of mineral admixture and ages on the strength-effect are quantitatively analyzed in both theory and experiment.

The Chinese version:

本文认为掺有矿物掺合料的混凝土复合材料的强度由水泥混凝土基体产生的轻度和矿物修合料的无力和化学两方面对强度的贡献两部分构成, 据此提出了全面估算混凝土矿物掺合料强度效应的新方法啊啊啊啊, 并从理论和实践两方面分析了水胶比、掺合料含量以及龄期对矿物掺合量强度效应的影响规律。

By a comparison of English and Chinese scientific and technical passage, we can find that as belonging to the same passage style, the English and Chinese version share some common points. Their most outstanding features are coherence in logic and clarity and fluency in expression. In them the use of obscure、subjective and personal words are avoided to ensure the objectivity and scientism of it. Besides, the wordings of them are both plain and precise, which is also to achieve the effect of truth and preciseness. But, we can also find that the whole structures of the two versions are quite different, which have much to do with the hypotaxis of English and parataxis of Chinese. Because of this reason,

a Chinese and an English passage adopt different ways to achieve the same goal: “coherence”. With emphasis on hypotaxis, an English passage is always rich in all kinds of link words or modifiers which can help make the structure of the passage clear, while in Chinese there are much less use of these link words for the Chinese passage is linked together by its meaning rather than its structure. So while doing translation, the translator must convert this kind of aesthetic beauty of coherence properly and correctly.

Following are another passage in both English and Chinese.

The English version:

In an age of super sonic airliners it is difficult to realize that at the beginning of the twentieth century no one had ever flown in an aeroplane. However, people were flying in balloons and airships. The airship was based on the principle of the semi-rigid structure. In 1900 Ferdinand von Zeppelin fitted a petrol engine to a rigid balloon. This craft was the first really successful steerable airship. In 1919 an airship first carried passengers across the Atlantic, and in 1929 one traveled round the world. During this time the design of airships was constantly being improved and up to 1937 they carried thousands of passengers on regular transatlantic services for millions of miles (Guo Fuqiang, 2004).

The Chinese version:

在超声速飞机时代，很难意识到在20世纪初期会无人驾驶飞机飞行。然而，人们驾驶气球和飞船在飞行。该飞船的飞行是根据半刚性结构原理。1900年，斐迪南·策佩林把一汽油发电机安装在硬质气球上。只是第一艘真正成功的可驾驶的飞船。1919年，飞船首次运送乘客飞跃大西洋，并与1929年环游世界。在此期间，飞船的设计不断得到改进，到1937年，运送乘客数千人吗，飞行数百万英里开辟了定期越洋航班服务。

A comparison of the two versions of the above passage with and former passage let us get to know there is another factor that should be taken into serious consideration while doing translation, that is, the style of the passage. Although scientific and technical writings belong to the formal kind of writings, it has several smaller different styles, such as common science readings, reports on science and technology, and so on, which the translator must do the translation accordingly. Some translation theorists such as Mao Ronggui hold the opinion that the EST translation should follow the criteria of properness by putting forward that while doing an EST translation a “proper” translation should be achieved. By “proper” is meant that the translated version of the EST writing should carry the same style as or at least a similar style to the original version which is being translated. From this, we can see the great attention paid to the style of EST writings during their translation process and the final appreciation and judgment on the translation effect by the

TL readers.

So to conclude, on the translation of EST passage, two aspects should be paid attention to, that is, the coherence and conciseness, preciseness of it, and its specific style.

Further, we can find out the suitable translation criteria for it, being:

Faithfulness in form, meaning, and style;

Smoothness in sequence.

After the systematic analysis of the EST translation aesthetics from the three aspects of the scientific and technical terminology, the titles of EST writings, and body of EST writings, on the basis of a comprehensive and profound analysis of the aesthetic properties carried by them, such a conclusion can be reached that though having different characteristics, the three different part of EST writings bear some common points as preciseness and conciseness and so on, thus can have common translation criteria as follows:

First, faithfulness in syllable form or morphology;

Second, faithfulness in meaning;

Third, faithfulness in style;

Fourth, smoothness in sequence.

These translation criteria may not suit the translation of all parts of EST writings which have their respective features, but the translation criteria adopted in the translation process of various parts of the EST writings can fall into some parts of them.

Chapter Five Conclusion

From ancient time to now, there are abundant fruits in translation research in China and western countries. The traditional Chinese and western countries' translation theories lay too much emphasis on literary translation, which results in great limitation. EST translation has for a long time remained only a practical pursuit and been ignored by Chinese and western countries' academic field. It is only recently with the further development of science and technology that it has become the focus of attention. The traditional method to study EST translation has been prevalently based on linguistic analysis. And the combination of EST translation and aesthetics is a relatively new area, and it deserves more research to make it perfect.

5.1 The Introduction to the Main Contents and Foundings of Each Chapter

The first chapter of this thesis is the lead-in introduction part, in which the research motivation, objectives, and significance of the author are made a brief introduction to, from which the readers can make it clear why this thesis is conducted by the very author, and also what can be further explored in this field.

In the second chapter, the author introduces translation aesthetics and related concepts "The theory of translation aesthetics may guide EST translation practice, since it not only helps translator acquire correct aesthetic standpoint, but also improves translator's ability to appreciate language, and enhance expression and acceptance effects of the target text" (Zhu Donghua, 2008: 51). By reviewing aesthetic sources of translation in China and western countries, it is found that nearly all fruits in this discipline are concentrating on literary translation, few on EST translation. This is why the author is eager to do this research. What is also introduced in this part is the major translation theorists and their main achievements both in western countries and china following the time sequence, on the basis of which the author concludes their similarities and dissimilarities, and their limitations as well with the conclusion reached by Zhang Boran that western translation theory, though objective, rational and analytic in theory, stress too much linguistic equivalence whereas Chinese traditional theory, which is subjective, intuitive and impressionistic, is distinctively marked by a tendency towards art and aesthetics and according to researchers, western translation theory is based on linguistics while Chinese culture and stemmed from classical literary theory and class aesthetic (Zhang Boran,

1997:25). Finally, for both, they did much research on the “source text-translator-translated text” line, rather than the “translator-translated text-readers” line. Although there are some scholars raising the idea to view the readers’ response as an important factor, they did not do enough research or practice on it. In the last, the author supplies some highlights and suggestions for Chinese translation theorists yet to come.

In the third chapter, the aesthetic subjects and objects in EST writings are analyzed with concrete examples, which are to bridge the former theory part and the following analysis part, and also make the necessary basis for the analysis, in which some requirements are proposed for the translator and the TL (target language) readers and also the common aesthetic properties shared by Chinese and English EST writings are concluded with the support of some examples and the opinions of great translation theorists.

Then come to the main part, Chapter Four, in which the EST’s aesthetic properties are analyzed from three parts: the scientific and technical terminology, the titles, and the body, after which the respective translation criteria are concluded based on their respective features.

In the first section of Chapter Four, the author introduces the two main categories of EST terminology: scientific and technical terms, semi-technical words and their respective aesthetic properties as well. Then on the basis of the first part, the formation EST terminology and their respective translation criteria are introduced and concluded, which put focus on the five formation methods: blending, compounding, acronym, affixation and borrowing. Then the author is devoted to solving a problem concerning the unification of translation in scientific and technical terminologies, after which the general translation criteria for EST terminology are concluded.

In the second section, the main forms of EST titles are described on three levels: nouns, phrases, and sentences, after which their respective aesthetic properties and translation criteria are analyzed and concluded.

In the third section of this part, the translation of body of EST writings is analyzed in the three levels: words, sentences, and paragraphs and passages. Here, words, different from the already discussed EST terminology, refer to ordinary words used in EST writings, whose aesthetic properties is concluded by Mao Ronggui as one word “sophisticated”. While discussing the sentences of EST writings, the four main features of EST sentences are analyzed, namely, the extensive use of passive voice, nominalization, long and complicated sentences and present tense, post-positioning of attributes, each of which has its own specific aesthetic properties and translation criteria in which more examples are

employed. Finally, on the basis of the former two parts, the paragraphs and passages are analyzed to reach conclusions on their aesthetic properties and translation criteria.

Following the aesthetic translation method of EST, with the translator and readers as the aesthetic subjects while the SL text and TL text as the aesthetic objects, with several supporting examples, the author finally gives birth to her own ideas on translation aesthetics criteria of EST, that is, to go further on the basis of faithfulness and smoothness, which is, faithfulness in syllable form, morphology, sentence structure, meaning and style, and smoothness in sequence. To her, the translation should first be faithful in the aspect of respective cultures and language uses, then, different parts of EST writings has their own different aesthetic translation criteria which should be treated differently.

In the last part of the body, there comes the acknowledge part, in which all people who have offered help and made advice and opinions for the author during her thesis writing are sincerely thanked.

5.2 The Limitations of the Research of this Thesis

Although this thesis is produced on the basis of a comprehensive and thorough analysis, understanding, and conclusion of the existing translation theories achieved by the former translation theorists in both china and western countries, there are limitations for this research in this thesis.

The biggest limitation for this research lies with the materials available to the author. With a limited access to such academic internet as Wan Fang, ANKI, and so on, and a short of concerned professional works produced by the most influential translation theorists, and the restricted flow of the campus internet, the author fails to gather the most sufficient talking points to support her arguments.

The limitation which is placed in the second place is the finite research on the EST translation aesthetics made by the most influential translation theorists, due to the relatively less exploration into the field of EST from the perspective of aesthetics.

What also counts a lot in the imperfectness if the research is the limited knowledge level and writing, concluding abilities of the author, which is the most important subjective factor lying in the process and result of the research.

5.3 Suggestions for the Coming Researchers

After carrying out a relatively profound work on the research on the EST writings

from the perspective of aesthetics and devoting quite some time and efforts to it, the author has got some understanding and thorough knowledge of this field, based on which she would like to make some suggestions for the researchers yet to come, with the hope of doing some favor for their future research.

What she would like to mention first is to try to gather the most materials on this theme. Materials are to the writing of a thesis or a work what bricks are to the building of a house. To produce a thesis as good as possible, the author must commit a lot of time on the collecting of the concerning materials, for only those arguments based on the most sufficient grounds can stand still and longer.

The second important element is to commit enough time to selecting the most useful points from the already gathered materials. Without a high quality selection and summarizing of the useful points, the thesis can not possess a high quality no matter how comprehensive the materials that have been collected are.

Last point the author put importance on is a correct attitude towards this task. "Attitude is everything" just as the above popular saying goes, attitude governs and decides the result of one work, which is no exception to the thesis-writing.

To conclude, the author is willing to give some advice on the possible research directions that can be conducted in the future. In her opinion, the aspect worth researching most is to explore for universal translation criteria and methods for EST writings through a more thorough analysis of them from aspects including aesthetics, which is aiming at putting newly generating EST writings in new fields into Chinese, which, due to the limitation of her knowledge and materials, the author just can not fulfill at the moment.

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