

Luoxia Hong and 24 Solar Terms and Their Translations

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Abstract: Up to now, there are few academic studies on the great astronomer, Luoxia Hong and the English translation of the 24 Solar Terms. Through the study of Luoxia Hong and the 24 Solar Terms and their English translations, this paper aims to, firstly, further reconfirm the historical status of Luoxia Hong and secondly, make a comparative study of the different translation versions of 24 Solar Terms from the perspective of translation studies, so that more people, home and abroad, can get more familiar with the historical and cultural celebrity Luoxia Hong and traditional Chinese culture.

Keywords: Luoxia Hong; 24 Solar Terms; English translations; Translation studies

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1 Luoxia Hong and 24 Solar Terms

More than 2000 years ago, our ancient Chinese scholars observed the changing patterns of the natural world, the climates, the turning of the four seasons and astronomy. These scholars carefully measured and divided the sun's annual movements into twenty four equal sections, creating the 24 Solar Terms. The 24 Solar Terms was used to guide the farming activities in ancient China. Even nowadays, considering that there are still more than 550 millions farmers in China, this invention still guides the lives and traditions of hundreds of millions of Chinese people. But, is there any connection between Luoxia Hong and the 24 Solar Terms?

The great astronomer, Luoxia Hong, whose

hometown is Nanchong City, Sichuan Province, is one of the representative figures who formulated the Taichu Calendar, which was officially promulgated by Emperor Wu of the Han Dynasty in the first year of Taichu period, that is, 104 BC. The first complete appearance of the 24 Solar Terms appeared is in this great work. Luoxia Hong created the celestial globe for observing astrology and connected it to 24 solar terms. For the first time, Luoxia Hong added 24 solar terms to the agricultural calendar, which laid the foundation for the Spring Festival and also benefited thousands of generations, for which the great astronomer has also been called Spring Festival Old Man.

According to Zha Youliang^[1], a well-known educator in China and researcher at the Sichuan Academy of Social Sciences, Luoxia Hong made three major contributions to astronomy, one of which is that, in the language of modern physics, he associate time with space and coordinate the period of the sun's movement with the phase change of the moon. Besides, Joseph Terence Montgomery Needham, a British historian of science and technology, called Luoxia Hong the most brilliant constellation in the history of Chinese astronomy.

2 The 24 Solar Terms and Their Translations

China's 24 Solar Terms are full of scientific knowledge of nature and even the universe, and have a profound and extensive impact on the basic necessities of life of the Chinese people for thousands of years. On November 30, 2016, UNESCO Intergovernmental Committee for the Safeguarding of the Intangible Cultural Heritage formally adopted a resolution

to include China's declared 24 Solar Terms in the UNESCO Intangible Cultural Heritage List of representative works. 24 Solar Terms are the embodiment of the idea of harmony between man and nature in traditional culture, among which exist not only the knowledge of natural sciences, but also the knowledge of social sciences, are very important art forms of our folk culture^[2].

However, the author finds that there are various English translations of China's 24 Solar Terms, but the quality varies and names are not unified. In the context of the Belt and Road Initiative, it is the academic mission of language teachers and learners to promote the traditional Chinese culture to go global, making more people gain a better understanding of China's 24 Solar Terms.

2.1 A Brief Introduction to Five English Versions of 24 Solar Terms

In this paper, the author makes a comparative study and summative evaluation of 5 English versions China's 24 Solar Terms, pointing out the English translation status quo of 24 Solar Terms, making a summative evaluation.

There are many English translations of the 24 solar terms. In this paper, the author adopts 5 representative versions, which are given by Donald MacGillivray^[3], Herbert A^[4], China National Committee for Terms in Sciences and Technologies^[5](hereinafter referred to as CNCTST), Zhang Junchi and Tian Chuanmao^[6], and Hong Kong Observatory^[7] (hereinafter referred to as HKO) respectively, among which the gap between the oldest version and the newest version is more than one hundred years.

2.2 Eugene A. Nida's Formal Equivalence and Dynamic Equivalence and the Principles of Translating Solar Terms

When talking about translation studies, Eugene A. Nida^[8] abandoned those old terms such as literal translation and free translation and came up with two terms, formal equivalence and functional equivalence. Formal equivalence focuses on the form and content of the information itself, that is, the information in the target language should be kept as much as possible with the source information which contains different elements. From his point of view, formal equivalence^[9]

is thus keenly oriented towards the source text structure, which exerts huge impact in determining accuracy and correctness. Functional equivalence or dynamic equivalence refers that the relationship between the receptor and information should be substantially the same as that which existed between the original receptors and the information.

Apart from the following of Nida's formal equivalence and dynamic equivalence, while translating the 24 Solar Terms, the translation should also follow the principle of scientificity, accuracy and simplicity to avoid mistranslation^[10].

2.3 A Comparative Study of the Five English Versions of 24 Solar Terms

After comparison, the author finds that in the above five translated versions, only five Solar Terms arouse no controversy. They are Summer Solstice("xia zhi" in Chinese pinyin), White Dew(bai lu), Autumnal Equinox(qiu fen), Cold Dew(han lu) and Winter Solstice(dong zhi). One point should be mentioned that among those versions, only Zhang and Tian's and CNCTST's versions capitalized the first letter of each term. All proper names must be capitalized. In other words, those versions which do not capitalize the first letter of each proper name do not conform to the standard. Therefore, the author agrees with Zhang and Tian's and CNCTST's versions from this point of view.

2.3.1 Four Solar Terms Which Indicates the Beginning of Four Seasons

In Chinese, the four days, namely "li chun", "li xia", "li qiu" and "li dong" symbolize the beginning of spring, summer, autumn and winter respectively. However, the diction given by the five English versions varies. On the one hand, the character "li", in Chinese, belongs to the word class of noun^[6] was translated into English as a noun by Herbert A and HKO. While translating, it is acceptable to change the part of speech. But, here, the 24 Solar Terms belong to a kind of cultural festivals and phenomenon with Chinese characteristics, just like Christmas, which is a noun in English, in the Western world. According to Nida's formal equivalence, it is recommended to translate it as a noun to achieve the closest natural equivalence to the source text(Table 1).

Table 1. Four Solar Terms Which Indicates the Beginning of Four Seasons

Chinese	Donald M.G. (1911)	Herbert A (1912)	CNCTST (2015)	Zhang&Tian (2019)	HKO (2020)
li chun	Beginning of spring	Spring begins	Beginning of spring	Start of Spring	Spring commences
li xia	Beginning of summer	Summer begins	Beginning of Summer	Start of Summer	Summer commences
li qiu	Beginning of autumn	Autumn begins	Beginning of Autumn	Start of Autumn	Autumn commences
li dong	Beginning of winter	Winter begins	Beginning of Winter	Start of Winter	Winter commences

Another difference in this part is the word selection between “beginning” and “start”. As nouns the difference between beginning and start is that beginning is the act of doing that which begins anything; commencement of an action or state; entrance into being or upon a course while start is the beginning of an activity or start can be a tail, or anything projecting like a tail. Hence, we can see that it is more proper to use beginning here.

2.3.2 Five Solar Terms that Reflect the Time and

Table 2. Five Solar Terms that Reflect the Time and Intensity of Rainfall and Snowfall

Chinese	Donald M.G. (1911)	Herbert A (1912)	CNCTST (2015)	Zhang&Tian (2019)	HKO (2020)
yu shui	Rain water	Rain water	Rain water	Rain Water	Spring showers
gu yu	Corn rain	Grain rains	Grain Rain	Grain Rain	Corn rain
shuang jiang	Frost’s descent	Hoar frost descends	First Frost	Frost’s Descent	Frost
xiao xue	Slight snow	Light snow	Light Snow	Light Snow	Light snow
da xue	Great snow	Heavy snow	Heavy Snow	Heavy Snow	Heavy snow

“gu yu” is the last Solar Term in spring. At this time, the seedlings in the field are first planted and new crops are planted. Corn is a cereal plant grown for its grain, specifically the main such plant grown in a given region. While grain is the harvested seeds of various grass-related food crops e.g.: wheat, corn, barley or grain can be a branch of a tree; a stalk or stem of a plant. “Rain” rain is condensed water falling from a cloud, which is more general and applicable to all regions. Therefore, the translation of “gu yu” should be “Grain Rain”.

“shuang jiang” contains the meaning that the weather is getting colder and the first frost appears. It is the last solar term in autumn, and it also means the beginning of winter and frost-fall season. To achieve formal and dynamic equivalence, guaranteeing the original meaning being conveyed in the target language, it is reasonable to translate it as “First Frost”.

The adjectives that match “snow” are slight, heavy, light and great. According to Zhang and Tian^[6], in the American Contemporary English Corpus (COCA), “heavy snow “is used much more frequently than” great

Intensity of Rainfall and Snowfall

While translating “yu shui”, the second Solar Term, into English, HKO translates it as “Spring Showers” and the other four versions translate it as “Rain Water”. In meteorology, Rain is considered to be a more widespread phenomenon while showers are more dispersed than rain. Besides, showers happen irregularly within a specific area. Hence, “Rain Water” is more scientific than “Spring Showers” (Table 2).

snow “, so is “light snow”. Therefore, “xiao xue” and “da xue” can be translated as “Light Snow” and “Heavy Snow” respectively.

2.3.3 Spring Equinox or Vernal Equinox

Equinox, or “分” in Chinese, refers to one of the two times in a year when day and night are of the equal length. According to the *Advanced Learner’s English-Chinese Dictionary*^[11], “chun fen” is translated as “spring equinox”, which coincides with the diction in *Longman Dictionary of Contemporary English*^[12]. Besides, COCA shows that “spring” is used much more frequently than “vernal” when they are collocated with equinox, which indicates that it is easier to spread in the Western world, so “chun fen” can be translated as “Spring Equinox”.

2.3.4 Four Solar Terms that Reflect Phenological Phenomena and Agricultural Activities

Those terms include “jing zhe”, “qing ming”, “xiao man” and “mang zhong”. “jing zhe” is the Solar Term when the weather is warmer after the Beginning of

Spring, and the spring thunder begins. It wakes up various insects hibernating in the soil. At this time, the ova during overwintering period will also start to hatch. CNCTST's "Awakening from Hibernation" not only reproduces the insect's awakening, but also

emphasizes the reason of its awakening. However, considering that waking is the synonym of awakening and to achieve the simplicity of Solar Terms in English, Zhang&Tian's version is more proper (Table 3).

Table 3. Four Solar Terms that Reflect Phenological Phenomena and Agricultural Activities

Chinese	Donald M.G. (1911)	Herbert A (1912)	CNCTST (2015)	Zhang&Tian (2019)	HKO (2020)
jing zhe	Waking of insects	Excited insects	Awakening from Hibernation	Waking from Hibernation	Insects waken
qing ming	Pure brightness	Clear and bright	Fresh Green	Clearness and Brightness	Bright and clear
xiao man	Grain full	Grain fills	Lesser Fullness	Unripe Grain	Corn forms
mang zhong	Grain in the ear	Grain in ear	Grain in Ear	Grain in Ear	Corn on ear

"qing ming" indicates that winter has gone, spring is coming and the nature is full of vitality and green. The paper mentions before that those Solar Terms are proper names just as Christmas. Therefore, to make the prominent fresh atmospheric environment, "Fresh Green" is recommended.

"xiao man" is the second Solar Term in summer, which means that the grains of summer is getting mature but not mature enough. CNCTST's "Lesser Fullness" is more proper than the other four because it depicts vividly the state of the grains.

"mang zhong" means that barley and wheat crops are mature and ready to be harvested, and other autumn crops can also be planted. To achieve simplicity, there

is no need to use an article. Besides, considering that grain is more general than corn, therefore, the former one is preferred.

2.3.5 Five Solar terms indicate changes in temperature

Considering that China has vast territory and heat and coldness are relative concepts. "处暑", which means the end of a hot summer. to achieve the formal equivalence and simplicity, it is recommended to translate "xiao shu", "da shu", "xiao han", "da han" and "chu shu" into "Lesser Heat", "Greater Heat", "Lesser Cold", "Greater Cold" and "End of Heat" respectively (Table 4).

Table 4. Five Solar terms indicate changes in temperature

Chinese	Donald M.G. (1911)	Herbert A (1912)	CNCTST (2015)	Zhang&Tian (2019)	HKO (2020)
xiao shu	Slight heat	Slight heat	Lesser Heat	Moderate Heat	Moderate heat
da shu	Great heat	Great heat	Greater Heat	Major Heat	Great heat
chu shu	Stopping of heat	Limit of heat	End of Heat	End of Heat	End of heat
xiao han	Slight cold	Little cold	Lesser Cold	Moderate Cold	Moderate cold
da han	Great cold	Severe cold	Greater Cold	Major Cold	Severe cold

3 Conclusion

After the comparative study, this paper tries to present its own English translation of 24 Solar Terms (Table 5). It is hoped that this paper can arouse the attention

of the society on the great merits that Luoxia Hong has made and on the translation of terms with Chinese characteristics into English, promoting Chinese culture to go global.

Table 5. After the comparative study, this paper tries to present its own English translation of 24 Solar Terms

Chinese	English	Chinese	English	Chinese	English
li chun	Beginning of Spring	mang zhong	Grain in Ear	han lu	Cold Dew
yu shui	Rain Water	xia zhi	Summer Solstice	shuang jiang	First Frost
jing zhe	Waking from Hibernation	xiao shu	Lesser Heat	li dong	Beginning of Winter
chun fen	Spring Equinox	da shu	Greater Heat	xiao xue	Light Snow
qing ming	Fresh Green	li qiu	Beginning of Autumn	da xue	Heavy Snow
gu yu	Grain Rain	chu shu	End of Heat	dong zhi	Winter Solstice
li xia	Beginning of Summer	bai lu	White Dew	xiao han	Lesser Cold
xiao man	Lesser Fullness	qiu fen	Autumnal Equinox	da han	Greater Cold

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