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A Probe Into Translation Strategies of Tech English Neologism in Petroleum Engineering Field

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Abstract

As a variety of English for Special Purposes (ESP), petroleum English has its distinctive features. Through a close examination of petroleum English characteristics as well as plenty of translation examples, this paper focuses on the translation of tech English neologism in petroleum engineering field, and provides some appropriate translation strategies.

Key words: Tech English neologism; Petroleum English; Translation strategies

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INTRODUCTION

Petroleum, as an extremely important strategic material, is related to a country's economic lifeline. Thus, many countries invest large amount of money on the research and development of petroleum science and technology, which in turn directly leads to the emergence of interdisciplinary and cross disciplines, and at the same time numerous petroleum neologisms as well. The subjects relevant to the petroleum engineering involve geological structure, seismic lithology, non-seismic exploration method, drilling process, gas field development and production, oil field chemistry, storage & transportation, oil refining equipment, petroleum economy and computer application etc.. Apparently, petroleum science and technology is a highly comprehensive subject, and its vocabulary is all inclusive.

For example, the extensive application of the computer and information technology in the petroleum field gave birth to the oil reservoir numerical simulation technology and the reservoir description technology, and meanwhile neologisms as "matrix"(矩阵), "grid block"（网格） and "time step" （时间步长）unavoidably enter into the petroleum engineering field. Undoubtedly, it can be estimated that with the development of petroleum technology, the vast expansion of petroleum terminologies will surely happen.

According to statistics, the new petroleum technical terminologies although occupy just about 5%-10% of the total passage of scientific articles, yet convey abundant information, and serve as the foundation of academic research papers. To some extent, petroleum English translation is the translation of technical terms. Therefore, the translation of petroleum neologisms has become a significant task. Although petroleum English terminologies still belong to the common core of the basic vocabulary of general English, in the field of petroleum science and technology, however, they have more precise meaning or definition. Special attention should be paid to the specific meaning of those terminologies while they are used in the petroleum field. In translation, the proper determination of the real meanings of the petroleum terminologies in the word context can remove the obstacle and shorten the distance which may result from the lack of understanding or even misunderstanding of the word meaning.

This paper, by studying the features of petroleum English terminology, attempts to provide some appropriate translation strategies in order to promote the standardization of the translation of petroleum English terminologies, especially the English neologisms.

1. FEATURES OF PETROLEUM ENGLISH TERMINOLOGY

1.1 Words With Unique and Accurate Meaning

Polysemy is a significant language phenomenon, and it appears widely in general English. But in petroleum English, terminologies are specific and accurate expressions with no figurative meanings. Especially in petroleum geology vocabulary, words regarding minerals, marine organism and geological age are highly noticeable in such features, for example:

feldspar —— 长石　　carbonate —— 碳酸岩
basalt —— 玄武岩　　trilobite —— 三叶虫
Devonian — 泥盆纪　　Jurassic —— 侏罗纪
Permian ——二叠纪

Although still numerous numbers of petroleum English terminologies originate from general English, the meaning of the words have been apparently changed. As a branch of ESP vocabulary (English for Special Purposes), petroleum English terminologies express the affirmative and negative statements, which, unlike the general English vocabulary, neither bear emotions nor have any literary rhetoric functions, therefore achieving the purpose of the objective descriptions.

For example, in general English "reservoir, trap, core, and plat-form" refer to "水库, 圈套, 核心and平台" respectively, however in petroleum English, the above words specifically mean differently as follows:

reservoir —— 油藏　　trap —— 圈闭
core —— 岩芯　　plat- form —钻井平台

"Christmas tree" in general English means "圣诞树", while when it appears in petroleum English, it is used as a technical terminology and refers to "采油树/井口生产装置". "Mud" in petroleum English is translated into "泥浆", yet, this mud differs from the mud of the usual sense in its material composition and way of application. "Productive" in general English is used to describe the ability to produce, while when used in the petroleum field, it denotes the productive capacity of reservoir (油层产油能力).

What is more, just as other technical texts, petroleum English as well has borrowed countless terminologies from Latin and Greek. Affixes of Latin and Greek constitute tens of thousands of derivatives with English roots. By this way, a greater number of petroleum English terminologies are formed, and the repetition of the derivatives frequently occurs. Latin and Greek affix itself can hardly form words independently, and the meaning of the affixes is relatively unique and stable with no emotion, no extension or ambiguity.

Petroleum English derivatives are formed by those Latin or Greek derivational affixes (prefixes and suffixes) and the English word roots, which generally originate from old English. Because Latin and Greek are rich in the affixes with strong adhesive ability, those affixes are widely used as word components of Petroleum technology terminologies. For example, the affixes like -ane (烃类), hydro- (氢), -ite (石头), geo- (地球), iso- (等, 同) constitute words as follows:

serpentinite —— 蛇纹石
calcite —— 方解石
dolomite —— 白云石
granite —— 花岗岩
hydrocar-bon —— 碳氢化合物
geothermal logging —— 地热测井
isoseismal —— 等震线
isolith —— 等岩性线

Both terminologies like the above derivatives and terminologies directly borrowed from Latin and Greek present the similar characteristics of being unique and stable in word meaning, for example:

Taphrogeosyncline —— 断裂地槽
taconite —— 铁燧岩
Talmessite —— 砷酸镁钙石
blueprinter —— 晒图机
Boehmite —— 勃姆石
basification —— 基性岩化
bathymetric system —— 深海测深系统
compartmentalization —— 断块复杂程度

1.2 Abundant Use of Compound Words and Abbreviations

1.2.1 Conjoining

Conjoining mainly refers to two kinds of word formation: compound and derivation.

By compound, two or more word bases are combined to form new words. Specifically, many tools used in the oil field are usually formed in the way of compounding of "verb +er/or", and generally, the verb shows the function of these tools, for example:

stabilize→stabilizer —— 稳定器
central→centralizer —— 扶正器
ream→reamer —— 扩眼器
rota→rotator —— 转子
state→stator —— 定子
ream→reamer —— 扩眼器

In petroleum English, the majority of compound words are with no hyphens, like "carinate fold", "cartridge filter", "cascaded response", "overall drilling speed", "pay evaluation", "blue sky exploratory well" and etc. Some of the compound words are not separated, for example, "washout" and "switchboard".

Derivation, one of the characteristics of petroleum English vocabulary, is applied when new words are created by adding affixes (prefixes, suffixes) to the original word. Examples are as follows: hydrocarbon, geothermal logging, decolorize, decomposition, decompression, diode, decade resistance box, undermine, underground reservoir, subterranean water, geodynamics, geodesy, geochemistry, generator, seismograph, refrigerant, amplitude, oiliness and ect..

To be specific, the root "de-" means being against something, and many terminologies are formed by "de", for example:

desander —— 除砂器
desilter —— 除泥器
degasser —— 除气器
defoamer —— 消泡剂
decolorize —— 脱色漂白
decomposition —— 分解
decompression —— 降压/泄压
dewaxing —— 除蜡
desalting —— 脱盐
demethanizer —— 脱甲烷塔
desulfur —— 除硫
deethanizer —— 脱乙烷塔
depropanizer —— 脱丙烷塔
debutanizer —— 脱丁烷塔
decoking —— 除焦
deoxidization —— 除氧

1.2.2 Shortening

By shortening, the originally long and complex terms are simplified, therefore forming short expressions. And initialism is the most frequently used method, for example:

Psi (pounds per square inch) 磅/平方英寸
PCF (pounds per cubic foot) 磅/立方英尺
BPD (Barrel Per Day) 桶/日
BHA (Bottom Hole Assembly) 井底 钻具组合
HWDP (Heavy Weight Drill Pip) 加重钻
LWD (Logging While Drilling) 随钻测井
GOR (gas oil ratio) 气油比
BOP (Blowout Preventer) 防喷器
MWD (Measurement While Drilling) 随钻测量
ID/OD (Inside Diameter/Outside Diameter) 内外径
OIIP (oil initially in place) 石油原始地质储量
SPE(Society of Petroleum Engineers)石油工程师协会
EOR (Enhanced Oil Recovery) 强化采油/提高采收率
ESP (Electric Submersible Centrifugal Pump)电动潜油离心泵
HP/HT (High Pressure/High Temperature) 高温高压

Abbreviations in Petroleum English appear very frequently so that highly efficient information exchanges can be ensured.

2. TRANSLATION OF PETROLEUM ENGLISH NEOLOGISM

The adoptable methods of technical term translation, to a great extent, depend on the ability of the target language to accept the foreignness from a foreign language. Borrowed words in English account for almost half of its vocabulary, and English is always ready to absorb new words from other languages and cultures. However, Chinese is different. Due to the distinctive features of its language habits, social and cultural elements, Chinese tends to coinage new words by using Chinese morphemes when facing a foreign culture. With full consideration of the facts that Chinese has not, to a great extent, borrowed words directly from English culture, and Chinese and English belong to different language systems, the introduction of petroleum English neologism should adopt some flexible translation methods. The choice of translation methods is largely determined by the features of petroleum English neologism, as well as the translation purpose, so that the scientific connotation of petroleum English neologism can be well delivered and the faithful and accurate expression of the petroleum English neologism can be achieved.

In the field of petroleum English translation, while dealing with a new concept, translators, first of all, would start from abstractly analyzing the characteristics of the new concept, and, according to the original meaning of the terminology, search the present Chinese vocabulary for the concept's "prototype", then on the basis of the "prototype", a new terminology is created.

2.1 Semantic Imitation

By semantic imitation, the content and meaning of the source language are basically copied to create the new terms and express new concepts that do not originally exist in the target language, for example:

table- land —— 台地
time- lag —— 时滞
oil salvage —— 废油再生
alkaline mud —— 碱性泥浆
swivel eye —— 旋转环
flushed zone —— 冲洗带
washout —— 冲蚀
switchboard —— 配电盘
sweep- out —— 扫油
staging the pipe —— 分段下钻
producing pressure —— 产油压力
operating pressure —— 工作压力
reinforced concrete —— 钢筋混凝土
enclosed fuse —— 封闭式保险丝
pressure- relief valve —— 减压阀

2.2 Alphabetic Imitation

Alphabetic imitation, which nowadays in the background of globalization is in an increasing trend, directly uses foreign abbreviations without any translation (or as sometimes called zero translation). Petroleum tech terms should bear the characteristics of being simple and clear, easy to understand, easy to remember, and easy to communicate, and the above characteristics have been fully embodied in the current increasing proportion of the application of the English acronyms in petroleum engineering field.

According to statistics, a number of Chinese new words also present a trend of syllable simplification. Of course, during the process of terminology introduction, semantic imitation and alphabetic imitation can be combined. The acronyms can be used as the translation of the terminology itself, while the semantic imitation can semantically supplement the definition of the terms, for example:

SPE(society of Petroleum Engineers) 工程师协会
RH(relative humidity) 相对湿度，
PL(pipe line) 管路，管道,
OIH(oil in hole) 井内油，
LPG(liquefied petroleum gas) 液化石油气，
EOR(enhanced oil recovery) 提高采收率，
OIP(oil in place)地下原油储量，
FVF (formation volume factor) 地层体积系数，
API(American Petroleum Institute) 美国石油协会，
DST(drill stem test) 中途测试，
IPR(inflow performance relationship) 流入井动态关系，
OWDD(old well drilling deeper) 老井加深钻井，
HFU(heat flow unit) 热流单，
MWD(measurement-while-drilling) 随钻测井

2.3 Analogical Imitation

With the development of petroleum science and technology, abundant new English terms emerge in petroleum engineering field. Analogy gives new meaning to the already existing terms. If, in the source language, new meanings can be applied to the old words, the similar method can also be possibly acceptable in the target language. The emergence of a large number of new words is the result of human being's deepened understanding of the objective world, but it is not reasonable to give each new discovery a new name, as otherwise the vocabulary of a language would be bound to become too large a number to be conveniently used. Therefore, analogy, by giving old words new meanings, constitutes a very significant part of English word formation.

Analogical imitation can be applied to the new terms that are formed by analogy. Translators can directly render the original correspondent words into target language, and for better understanding, quotation marks are recommended to be used in the translated version, for example:

Duckbill —— "鸭嘴装载机"
kill a well —— "压井"
mule's foot ——"驴蹄形绳结"
mule shoe guide —— "斜口引鞋"
mule shoes nipple —— "斜口管鞋短节"
rat holing —— "钻鼠洞"
mouse trap ——"鼠笼式打捞器"
wildcat —— "野猫井"
dogleg —— "狗腿"
horsehead —— "驴头"
nodding donkey—— "驴头"
dead oil —— "死油",
dead cathead —— "死猫头"
blow out —— "井喷"
water leg —— "含水区"
water out —— "水淹"
well head —— "井口"
dry hole —— "干井"
manhole —— "人孔"
dry gas —— "干气"
lean gas —— "贫气"
enriched gas —— "富气"
free gas —— "自由气"
sweet gas —— "无硫气"
sour gas —— "含硫气"
sour water —— "含硫污水"
crow-foot guided valve —— "爪子扶正阀"
goose neck —— "鹅颈管/鹅颈导向器/弧形导向器"
rat hole —— "大鼠洞" (which is a hole near the drilling rig to temporarily hold the backup drill pipe)
mouse hole —— "小鼠洞" (which is a hole near the drilling rig to temporarily hold the Kelly)

When readers get familiar with the above translation, and when the new meanings of the old words are generally accepted, the quotation marks can be removed.

The majority of petroleum English terminologies are borrowed from other languages, thus the translation as well as contrast of those terminologies constitute the most fundamental tasks of scientific research. In today's background of vast globalization, with the flooding of various novel technology, new knowledge and fresh theories, abundant petroleum English neologisms are in great need of translation. Therefore the translation of petroleum English terminologies is not only relevant to the proper dealing of translation style but rather to the right choice of translation techniques. The above discussion of petroleum English translation attempts to combine translation techniques with English word formation, therefore promoting the standardization of the translation of petroleum English terminologies, especially those petroleum neologisms.

CONCLUSION

Based on mastering the translating methods and techniques, the primary task of translators, who are dealing with petroleum English translation, is to grasp the professional knowledge and understand the dynamic development of petroleum engineering, and in order to achieve such goals, the translators are required to constantly strengthen the translation practice and to enhance perceptual knowledge. Petroleum English translation is highly practical, and to strictly interpret the scientific facts, translators should be familiar with the relevant production equipment and the production processes, adhere to the study of the professional knowledge concerning the petroleum science and technology, and master the latest professional tendency, so as to cultivate strict and proper translation style.

By understanding and mastering the connotation and denotation of the basic vocabulary in petroleum English, translators should make full use of these words to reflect the language structural features of technical texts. Due to the particularity of the textual function, significant features of technical texts can be summarized as the coherence in narrative logics, and the clarity and fluency in expression. The obscure expression, the author's personal feelings and the subjective argument should be avoided.

As a kind of scientific writing, petroleum English translation also requires accurate and concise use of language, logical and rigorous sentence structure, as well as clear expression. What is more, besides all the attention to the level of vocabulary, petroleum English is also noticeably unique in its use of declarative sentence, passive voice, long sentences, and etc.. And due to the differences between Chinese and English, adaptations in translation, for example, translation methods like cutting, conversing (conversing of part of speech, conversing of sentence patterns and conversing of voice), splitting, adding and ellipsis, are frequently practiced to guarantee the accuracy and smoothness of the translated version. The proper dealing with those characteristics, to a great extent, determines the overall quality of the translated version. According to the text content and function, the translator must skillfully grasp the overall style of the original text and properly apply translation techniques, in order to achieve the maximum equivalence of the original text and the translated version in the aspects of text style and function.

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