

Historic Impact of Ancient Greco-Roman Mythology on Medical Terminology

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Abstract: *Ancient Greco-Roman mythology, as the origin of western civilization, exerts an important influence on every aspect of western culture, especially on medicine. Language, as a carrier of culture, is inseparable from culture. Therefore, vocabulary is the most direct tool to support culture. The title, image, name, and story of the Gods from ancient Greco-Roman mythology are employed to name medical terminology directly or deduced the roots, prefixes and suffixes are used indirectly to form medical terminology. By exploring the historic impact of Greco-Roman mythology and Greco-Roman culture on medical English terminology, it is easier for medical students to understand the deep meanings of complicated terms, grasp the connotation of the words, and stimulate students' learning interest.*

Keywords: ancient Greco-Roman mythology, medical terminology, historic impact.

1. INTRODUCTION

Greece is the birthplace of western culture and ancient Greeks have a very rich imagination. In their eyes, everything in the world has feelings, life and meanings. In the face of the ever-changing universe, they have their own set of interpretive ideas, and they weave many mythological stories. In the field of western literature and art, many famous works, sculptures and paintings are based on Greek mythology. The history of western medicine is greatly influenced by Greece, producing many terms of anatomy and disease related to Greek mythology.

Myths like Greek mythology did not exist in Rome at first, and it was not until the end of the Roman Republic that Roman poets began to write their own myths imitating Greek mythology, and the Romans did not have traditional legends such as the struggle between gods as in Greek mythology. Latin is the language of the ancient Roman, and the Romans are mainly Latin peoples, so its language is called Latin. With the gradual power and territorial expansion of the ancient Roman Empire, Latin was brought to much of Europe, exerting a significant influence on many European languages. Latin has now become an international academic language, except for a few regions of the world that continue to use Latin as their daily language of communication. According to statistics, more than 70% of English scientific and technological vocabulary originates from Latin, and medical English is more prominently affected, and anatomical terms, drug names and abbreviations commonly used in prescriptions in medicine are mostly Latin.

A large part of medical English terminology derives directly from Greco-Roman mythology. Medical terminology is complex and complicated, and tracing the etymology of medical English is a most effective way to understand and learn it well. Medical English terms mainly derived from Greek sources, with Greek origin terms accounting for 48.2%, Latin sources accounting for 38.3%, English sources accounting for 12.2%^[1]. Because the formation of Greek and Latin sources is relatively fixed and has clear meanings, most medical terms have mostly used Greek and Latin origin morphemes to construct new words from ancient times to the present.

This paper explores the penetration of medical English terms by the names of the gods in ancient Greek and Roman myths and related historic stories, so as to help learners better understand the etymology of medical English terms, stimulate their interest in learning, and make them memorize and master these terms easily.

2. FEATURES OF MEDICAL TERMINOLOGY

Medical English, as a subcategory of academic English, is referred to as English for Medical Purpose (EMP). Medical English Words are words created to accurately describe human body and its associated components, conditions, processes and process in science-based manner. Medical English terms refer to words that have clear scientific concepts, and are generally used only in medical articles and rarely appear in other fields. They are mainly composed of professional terms that describe and relate to the complex scientific field of medicine. Medical English terms, as complicated and arbitrary as it is, arouses the interests of the linguists. Consequently, researchers

conduct detailed researches to unveil the features of the EMP words and learning strategy of the medical English words.

Compared to English terms in other disciplines, the characteristics of medical English terms are relatively obvious. Many of technical terms and terminology in medical English derived from Latin and Greek, and Greek and Latin morphemes play a pivotal role in medical English terminology. In addition to historic reasons, Greek and Latin have a rich vocabulary and a strong ability to form words through using its affixes and different stems to combine different new words. For example, the prefix anti- can be used to form antigen, antibody, antibiotics, antidote, and so on.

Generally acknowledged, medical terminology is a special vocabulary used by health care professionals for effective and accurate communication. That is to say, compared with the vocabulary in English for general purposes (EGP), medical terminology refers to its application to medical fields. Therefore, if medical students want to learn medical English well, medical terminology is the first obstacle to overcome because of its features. However, medical English has some of its own lexical features compared with other English for Science and Technology (EST) languages. From the angle of etymology, Greek and Latin words and morphemes occupy a high percentage in the vocabulary of medical English.

Medical English terms have obvious structural characteristics, containing a large number of roots and affixes from ancient Greek and Latin, and if one analyzes the etymology of these roots and affixes to find that they are infiltrated and influenced by western culture in word formation and word meaning evolution. Exploring the etymology of medical English terms not only helps to reveal myths and legends behind the words, appreciate the rich and colorful western cultural connotations, understand the essence and origin of language, but also helps to change the traditional mechanical memory methods and promote language acquisition.

Wilkins (1972) said: there were few things that people could express without grammar; whereas there was nothing that people could express without lexis;^[2] which exactly shows that lexis (or vocabulary) is the most essential component in every language. Equally, if compared grammar to the soul of medical English, then the medical terms can be compared to the flesh and blood. Specifically, the importance of medical terminology lies in the following two aspects:

On the one hand, with the fast development of globalization and ESP becoming a hot topic in recent years, the communication is more and more frequent in the field of medical science. Obviously, to master medical terminology is the first obstacle to overcome. Only by knowing the medical terminology will the communication with others be smooth. And only by knowing the medical terminology will one be able to comprehend medical abstracts, articles, papers, etc.

On the other hand, medical terminology is of great importance for medical students to learn medical science. In universities, medical students learn medical science out of various purposes such as for the final examination, for being a doctor in China or in other countries, out of his or her own interest, etc. However, no matter what purpose medical students are out of, medical terminology is always the first and foremost path that every medical student must go across.

In summary, medical terminology has great importance both from the perspective of international communication and the learning of medical science for medical students. If one wants to learn medical science well, he should master medical terminology in the first place.

3. LITERATURE REVIEW

Li Dingjun (2006) introduced medical English vocabulary systematically from the perspective of etymology, morphology, semantic and lexicology, which is based on the theory of medical linguistics.^[3] Yao Xin and Gong Xiulin (2010) mainly studied English medical terminology from roots and affixes, choosing about 300 roots and affixes that are often used in medical English. Wei Xianggang, Li Peilong and Li Jinyan (2015) published the book *The Chinese-English Fundamental Medical Glossary*, which includes about 8,500 Chinese-English words. Medical terminology is also studied from the perspective of etymology. For example, Lu Fengxiang and Meng Qian (2014) discussed that how the ancient Latin and Roman fairy tales functioned in the process of the formation of English medical terminology from the aspect of etymology; Li Junmei (2005) introduced that how the terms in

the ancient Latin and Roman fairy tales is extended and shifted in English medical terminology; Zhu Yumin (2011) stated the characteristics of English medical terminology from the perspective of etymology.^[4]

Yu Luoqian (2009) discusses medical English words from the perspective of etymology. She points out medical English words derive from various origins such as English, Greek and Latin. As a result, different words from different origins will stand for the same meaning - synonyms occur. For example, there are two alternative words representing body: corpus and soma. Body was passed down by the Anglo-Saxons, corpus is rooted in Latin while soma is absorbed from Greek. All of the three words can refer to the body of the humans. Moreover, she enlightens that derivative words and paronyms as digest, digestive, digestible accounts for considerable amount of medical English vocabulary. In addition, amphibious words (also referred to as semi-medical lexis) also exist in EMP. Amphibious words originate from general English (EGP), however, their meanings shift when used in the medical articles. For instance, appendix is an attached part to the article or book for further explanation in general context, however, it means a small tube of our body that is attached to your digestive system in a medical context.^[5]

Soutis (2006) studied the Latin and Greek root of medical English vocabulary, which was supposed to create more than 90% of the English medical terms. Louise (2009) exposed that there are numerous of compound words in medical English vocabulary. Cohen (2016) published *Medical Terminology: An Illustrated Guide* (the fourth edition), which helps readers develop a fundamental knowledge of the medical terminology necessary for a career in any health care setting.^[6]

From what has been discussed above, it can be easily concluded that many experts both in China and abroad have studied medical English terminology from many perspectives, such as etymology, morphology, semantic and lexicology. Based on this, this paper further digs the historic impact of Greco-Roman mythology and Greco-Roman culture on medical English terminology.

4. THE HISTORIC IMPACT OF GRECO-ROMAN MYTHOLOGY ON MEDICAL ENGLISH TERMINOLOGY

4.1 Greco-Roman culture is an important source of medical vocabulary

Greek culture is a world cultural heritage, playing an important role in the development of European literature and art, and making western civilization brilliant and colorful. The ancient Greeks and Romans incorporated names of gods in Greco-Roman mythology into medical terminology based on their characteristics, images and events, which greatly expands the number and meaning of English vocabulary. Words in medical English are also used as symbols to carry Greek culture, and cultural connotations have been passed down in the process of use.

Cultural elements from Greek and Roman mythology can be found in the names of many organs and tissues in the human body, and some are directly transformed from God names.

For example, Atlas was a giant in Greek mythology, who, together with the Titans, fought against the Olympian gods led by Zeus, and after his defeat, Zeus punished him for carrying the sky forever. The first cervical vertebrae holds the head like Atlas against the sky, hence the medical word atlas (atlantospine); Atlas Vertebra (cervical vertebra) and atlodidymus (atlantovertebral twined) are used. When talking about various medical tests, we think of a rap fairy Echo. The Prince Charming in her heart did not like her, she was so depressed that she lost weight day by day, and finally disappeared into a deep mountain sky, leaving her voice echoing in the valley. This leads to echocardiography or echocardiography; Echosonogram stands for ultrasound echogram.

Some of the names of gods in Greco-Roman mythology faded with the development of language, and evolved into medical terms, which are used to denote human organs. For example: Iris, the rainbow goddess in Greek mythology who announced the message to the gods, derive from the word "iris". Sphinx, a sphinx monster descended to the human world by the gods, derive from sphincter, and related words include: sphincterectomy, sphincteroplasty, sphincterotomy and so on.

Arachne, a young girl in Greek mythology, challenged the Greek goddess Athena to weave, and she won the competition, but Athena turned her into a spider out of jealousy, hence athenas also means "spider and arachnid membrane".

Achilles was a Greek hero, son of Thetis (the nymph of the sea), and great-grandson of the god Zeus. His mother wanted her son not to be hurt by the sword and arrow, and when he was very young, she immersed him in the river Styx in hell, so that he could not enter the sword. Since his mother carried his heels and dipped him into the river, therefore, feet. The heel part did not get immersed in the river, which became his only weak point. Future generations of anatomists called the heel the Achilles tendon. When the Greek coalition was about to storm the city of Troy, the Trojan prince Paris, with the help of the sun god Apollo, shot Achilles in the heel with an arrow, ending his life. This constitutes a large number of medical terms related to Achilles, including Achilles tendon, Achilles bursa, Achilles bursa, Achillobursitis, Achillorrhaphy, achillodynia, achillotenotomy, etc.

To punish Minos, the king of Crete, for breaking his promises, he made his wife fall in love with a bull and gave birth to a half-human, half-bull monster son, Minotaur. In order not to make the skeleton in his cupboard public, Minos asked the famous Athenian architect Daedalus to design and build an extremely complex and chaotic labyrinth, named labyrinth, to imprison his monster son. In our ears, there is such a structure, which consists of some curved pipes and sacs buried in hard bones, because it is complex in structure, the pipes spiral, like a labyrinth, so it is called the inner ear labyrinth.

Narcissus was a handsome and dashing boy in Greek mythology, who rejected the love of the fairy Echo because of his arrogance and nobility, and was punished by Nemesis for falling in love with his reflection, he guarded a lake without sleep, just to be able to accompany his beloved, and eventually died in depression by the lake. Later generations of psychologists borrowed his name for mental illness narcissism.

In Greek mythology, Siren was one of the three goddesses of the Italian coast, a beautiful sea banshee with a human upper body and a fish on the bottom. She seduced the navigator to run aground and destroyed with a beautiful song. Based on her external characteristics of being a human upper body and being a fish on her lower body, her appellation evolved into "sirenomel-us", which means "legless teratology", and sirenomelia, which means "footless and leg deformity".

Cyclops, along with Titans and Centimani, was a son of Uranus and Gaea. He was tall, powerful, and makes lightning. Based on its external features, Cyclops was transposed by the medical term cyclop (one-eyed teratology) for congenital malformations: cyclops hypogna refers to unicornous malformation of the jaw.

Oedipus was a tragic figure in Greek mythology. He was the son of the king of Thebes, and because the oracle predicted that the child would marry his father, he was abandoned by his father after birth and later given to the neighboring king of Corinth for adoption. When he grew up, he left his adoptive parents in order to escape a terrible fate, only to kill his biological father on the way, whom he did not know. And because of his ability to eliminate demons, he was promoted to the king of Thebes, married his biological mother he did not know, and gave birth to two men and two women. Later, when the plague struck Thebes, he begged God for advice, and finally the truth came out, and his mother (who was also his wife) committed suicide. Oedipus, in remorse, blinded himself and abandoned his country into self-exile. The psychiatrist Freud called the Oedipal complex in the psychological development of boys's love for their mothers. The counterpart is Electra, who was the daughter of Agamemnon, commander of the Greek coalition, and Queen Klytemnestra. After the end of the Trojan War, Agamemnon returned home, but was killed by the queen and her brother-in-law Aegisthus. Electra encouraged her brother Orestes to enter the palace and kill her mother and brother-in-law. Psychiatrists compared this story of a daughter killing her mother in order to avenge her father to a girl's father-in-law complex in psychological development.

Proteus was the name of the god of the sea in Greek mythology, because of the changeable personality of this sea god, so Proteus Syndrome represents a strange condition in which patients seem normal in childhood, but then quickly become super obese.

Greek culture is a rich source of thought guidance. Drawing the essence of culture from Greek culture can benefit medical students for life. The expression of god and man in Greek mythology is rational and has no lack of humor. The myths they weave are unique in the field of western literature and art, cultivating people's sentiments. Hygieia, the daughter of the Greek goddess of healing, is healthy, young, beautiful, able to cure diseases and plagues, and bless people with health. People worshiped her as if she were her father and worshipped her as a goddess of disease prevention. Therefore, the term health hygiene can make people have positive and positive associations. Psyche is a beautiful mortal princess who has gone through all kinds of difficulties to find her husband and husband to live happily together. What we see is girls who are determined and persistent. This leads to the medical prefix Psych, which refers to the human mind and soul, and thus has a series of words, such as psychology and psychiatry.

By understanding the myths behind these medical English vocabulary, learners no longer find medical English vocabulary difficult and boring. Medical English vocabulary has changed from meaningless and irregular letter combinations to vivid gods and human beings, from which learners can feel the joys and sorrows of life. This not only makes the memorization of words simple and interesting, but also makes the learner's understanding of words more accurate and profound.

4.2 Greco-Roman culture is an important source of medical spirituality

The duty of doctors, whether Chinese or western, is the same: to save people's lives. This profession requires a strict work ethic and professional principles. The famous founders of medical science in ancient Greece provided us with a good example and also a high moral principle as a doctor. The history of medicine involves a famous figure—Hippocrates, the father of western medicine. In his Hippocratic Oath, which has survived throughout the world, he mentions: "I swear to Asclepius, the god of healing... Observe the credo of working for the benefit of the sick and observe all depraved and harmful behavior. Among them, the god of medicine mentioned by Hippocrates is one of the gods and messengers in Greek mythology.

Many medical schools, journals, books, and administrative agencies often have the symbol of serpent and token. Some have only one snake, some have two snakes wrapped around branches, some have a pair of wings, etc., which also evolved from Greek mythology. The Greeks believed that the serpent was the embodiment of wisdom, possessed mysterious healing powers, and was a symbol of healing miracles. The single snake cane is a traditional symbol of the medical industry, as well as the medical department of the World Health Organization, the U.S. Army and Navy. Knowing this knowledge, medical students will understand more thoroughly and be more impressed when they look at the WHO logo.

Holding a token with a serpent wrapped around it, Asclepius, the god of healing, was the son of the sun god Apollo, and many temples in Greece dedicated to him functioned as clinics and hospitals. In order to enable Askerepis to enlighten the patient, the monk doctor used various methods to guide the patient into dreams, and the next day he could be cured. They kept sacred serpents in the temple to make the healing ritual more mysterious, and the tamed serpent would deftly twist to the patient's side and lick his wounds. In Greek mythology, Hanmis, one of the twelve gods, also held a staff made of olive branches, with two serpents wrapped around it, and wings on the top of the token, exactly the same as the symbols of modern military doctors. However, he did not know how to heal, and his messenger token could open the door between man and god, and has the magic power to reconcile any conflict. Classical scholars believe that the token of the god of healing, Askerepis, which has only one serpent, is truly a symbol of medicine.

Through learning the medical humanistic spirit and medical ethics inherited from Greek culture, students can experience culture and stories, increase their interest, and at the same time gain a new perspective and understanding of the longevity and sacredness of their profession.

5. CONCLUSION

It is universally acknowledged that as the cradle of western civilization, ancient Greek and Roman are one of the foundations of western civilization and have had a great influence on European culture. Among them, many myths and legends in Greek and Roman culture have penetrated into such domains as politics, culture and language. The influence does not only exist in literary and artistic works, but also reaches the field of science and technology, and many terms in the field of science and technology come from the names of ancient Greek and Roman gods. Medical English terminology is no exception.

Western medicine originated in ancient Greece, when people faced mysterious medical phenomena, often with the help of myths and legends left by ancestors to explain, and a large number of mythological names, place names, allusions to name the anatomy of the human body, clinical diseases and drug names. As Greek mythology spread to ancient Rome, the Romans adapted it and reassigned Latin names to each figure, so Roman mythology was often seen as one with Greek mythology.

The American Chinese philologist Edward Sapir (1884-1939) believed that there is something behind language, and language cannot exist without culture^[7]. The famous American translator Eugene Nida (1914-2011) believes that language and culture cannot exist independently of each other, and that language not only reflects culture but also shapes culture^[8]. Ancient Greco-Roman mythology has a profound and huge influence on medical English

terminology, by digging deep into the characters and stories related to medical English vocabulary in Greco-Roman mythology, one can trace the etymology of medical English terms, understand the Greek and Roman culture for a deep understanding of the origin of words, accurately grasp the inner meaning of words, improve the efficiency of word memory, and enhance the humanistic literacy and cross-cultural communication ability of medical school students.

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REFERENCES

- [1] Patwell, J.M. Fundamentals of Medical Etymology. Dorland's Illustrated Medical Dictionary (29th edition.)[M]. Beijing: People's Medical Publishing House/Harcourt Asia Pte Ltd., 2001.
- [2] Oscar E, Nybaken. Greek and Latin in Scientific Terminology[M]. US: Iowa State College Press, 1999.
- [3] Room A. Who's Who in Classical Mythology [M]. NTC Publishing,1997.
- [4] Paluzzi A, Fernandez-Miranda J, Torrenti M, Gardner P. Retracing the Etymology of Terms in Neuroanatomy[J]. Clinical Anatomy. 2012 Nov, 25(8) : 1005-1014.
- [5] Yu Luoqian. Discussing the Meaning of Words in Medical English Translation from the Perspective of Medical English Etymology[J]. Journal of Hunan University of Science and Technology. 2009(6): 189-190.
- [6] Trompoukis C, Kourkoutas D. Greek mythology: the eye, ophthalmology, eye disease, and blindness[J]. Can J Ophthalmol 2007 Jun, 42(3) : 455-459.
- [7] Sapir. E. Language[M]. New York: Harcourt, Brace and Company, 1921.
- [8] Nida E. Language, Culture, and Translation[J]. Journal of Foreign Languages, 1998:29-33.