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**EPONYMOUS TECHNICAL TERMS IN ENGLISH SPECIAL
TERMINOLOGY**

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Abstract

Eponyms and eponymous terms in a special terminology is one of the main interests in modern linguistics. Eponyms which are used in technical sphere are often more frequent language types than any other units. Traditionally, eponyms are understood as proper names that have passed into the class of common nouns. Identifying the structural features of eponyms and eponymous terms in English technical terminology is the purpose of this study. The paper analyses the features of using eponyms in English terminology, the terminological class creation as a result of this usage is given hereto. Today, scientists come to the conclusion that eponyms form an important part of terminologies of many areas of professional activity and create the scientific and technical discourse. The analysis of eponyms made it possible to identify nominations in which proper names act as the essential characteristic of a technical terminology. The methods relevant for such an analysis are stipulated by the aim of identifying the nominations in which proper names act as the essential characteristic of a technical terminology. Peculiarities of the functioning of eponyms in special texts indicate the impossibility of describing events occurring in a language without mentioning proper names as a linguistic component of the term creating process. For identification of the eponymous terms the following groups were used: devices, laws, values, methods etc. According to modern researchers, the eponyms which are an active source of replenishment of professional terminology become an integral part of the process of replacing complex structures with shorter ones.

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Keywords: Anthroponym, eponym, eponymous term, proper name, terminology.



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1. Introduction

One of the most attractive sources of terminological vocabulary replenishment is proper name, its denotations are well known in professional activities (Alekseeva & Vasilenko, 2015; Blau, 2010; Novinskaya, 2013; Gorokhova & Kubyshko, 2019; Tkacheva, 1986). Modern linguistic science, striving to understand the sign nature of the language, is aimed at determining the role of a man in the language process, using language as a means of communication. At present, terminological units that were formed from proper names are the object of the study not only of linguists, but also of scientists of different branches of knowledge (Bezhenar, 1990; Caldwell et al., 2019; Costa, 2020, Kloster, 2014; Majaeva, 2009; Sidorova & Fedorova, 2019; Vakhrameeva, 2003). Many researchers, receiving the latest survey results, based on the data that were originally described by other scientists. In such cases, a reference to previous works was a link between the past and the present, perpetuating the names of many inventors and discoverers when a particular phenomenon was named after them. The study of eponyms and eponymous terms allows to consider proper names as a potential source for naming special concepts (Grinev-Grinevich, 2008; Tatarinov, 1988).

1.1. Investigation project

This article has made the use of technical eponymous terms in special terminology a focus of the attention as researched withing the English Technical Terminology Project (ETTP). The survey was carried out from September 2019 to May 2020 as a part of a larger Development of Special Field Terminology Program. In order to standardize technical terms in various professional fields, a specific program was initiated in 2012. The project was aimed to promote cooperation between linguists and experts in professional fields of knowledge and contribute to the creation and development of a prescriptive terminology database. Due to the nature of this kind of work, a large number of technical specialists and terminologists who worked as university teachers were involved in this project and the use of technical eponyms and eponymous terms was taken into account.

1.2. Classification of technical eponyms

The term «eponym» is generally defined as one for whom or which something is or is believed to be named (Danilenko, 1977). Eponyms are traditionally called proper names that have passed into the class of common nouns (Kazarina, 1998; Litovchenko, 2006; Manerko & Sharapkov, 2015). In technical technology as in any other scientific and professional field there are terminological units that use the proper names of their discoverers such as the names of new devices, substances, methods, laws etc. They constitute a significant part of a special terminological base. A person who has made a significant contribution to the achievements of a particular nation will be honored with eponyms and considered as the highest criterion of recognition in science (Vakhrameeva, 2003). The analyzed eponymous terms were classified according to the role of their concept, i.e. the proper name which was assigned. Thus, eponyms can be classified into eight major groups: devices, laws, values, models, research methods, toponyms, brand names and graphic images. The following sections will explain this. Relying on some scholarly opinion, the eponymous terms can be categorized in accordance with their concept level. A semantic gradation is used in this research to scrutinize the nature of the concept being analyzed.

According to some authoritative opinions of scientists, term formation stands apart from general word formation procedure as it is premediated action with social ability to transmit of knowledge as well as to facilitate communication act (Alekseeva & Vasilenko, 2015; Pumpyansky, 1981; Reformatsky, 1961). However, when it comes to the formation of primary terms, eponyms are created deliberately and thoughtfully, considering explicit or understood regulations and principles governing naming of scientific discoveries or inventions within a particular activity or sphere. In technical language eponymous terms are often produced in the same way.

2. Problem Statement

The growing interest in special terminologies, especially in eponymous units that use proper names in their structure, has led to the emergence of a new science at the end of the 80s of the XX century, terminological onomastics (Podolskaya, 1988). It deals with issues of origin, structural and semantic characteristics, functions and the linguistic nature of proper names, which were included in professional communication models (Nikulina, 2013). The task of linguists is to solve many controversial issues, such as determining of eponymous structures, their origin, classification and description of the main terminological groups which are included in professional communication. Technical terminology is constantly updated with new terms denoting new concepts, where onomastics is the art of giving names and the source of replenishment of the professional vocabulary (Podolskaya, 1988). Scientists use different terms to name the phenomenon of eponymization and eponyms as a result of this process, for example, «family terms» (Desheriev, 1977), «termonyms» (Tatarinov, 1988), «eponymous terms» (Bezhenar, 1990), «onymic terminological phrases» (Pumpyansky, 1981), «personalsims» (Reformatsky, 1961). Considering the system of terms as a whole, two types of eponyms are usually distinguished: 1. terms which include the names of persons who directly made a major discovery or headed a new scientific school; 2. terms including surnames assigned to objects in memory or in honor of a person. (Novinskaya, 2013). In this paper eponyms should be understood as proper names (anthroponyms), which are present in the concept (Bezhenar, 1990; Kereković, 2019) and eponymous terms as certain term combinations that contains in their structure both a proper name (toponym, anthroponym etc.) and a common noun to denote a scientific concept (Grinev-Grinevich, 2008; Koshlakov et al., 2019).

The aim of the study is to identify the structural features of eponyms and eponymous terms in English technical terminology. In accordance with this goal, the following tasks are solved:

- derive a definition of eponyms and eponymous term
- determine motivation / demotivation of eponyms
- analyze pros and cons of eponymous terms
- make a selection of eponyms and eponymous terms for linguistic research

2.1. Motivation / demotivation of eponyms

The eponymous terms attract the attention of experts due to their special function and represent an interesting material for studying and replenishing of terminological vocabulary. When considering eponymous terms, linguists express different points of view regarding eponym «motivation / demotivation». According to some researchers, eponymous terms are classified as motivated (Kazarina,

1998; Kulikova, 2012; Nikulina, 2013; Tatarinov, 1988), while others adhere to a completely opposite point of view (Danilenko, 1977; Desheriev, 1977). According to the analysis of special terminologies, it can be assumed that eponymous terms are semantically motivated and logically justified, since they receive a completely motivated name. In technical terminology, certain motivational attributes are fixed with the help of a proper name associated with the nomination object (Blau, 2010; Gorokhova & Kubyshko, 2019; Tkacheva, 1986). Such an associative connection is very common to the whole semantic group, and mostly the result of conscious nomination to the person engaged in the process of discovery. (Gorokhova, 2019; Sidorova & Fedorova, 2019). Moreover, eponyms are not synonymous, homonymous, polysemic which allows to these units to be contributed to unambiguous, which brings them closer to ideal terms (Danilenko, 2015; Grinev-Grinevich, 2008; Kulikova, 2012).

2.2. Pros and cons of eponymous terms

While there has been a long debate over the application of eponymous terms in special English language, the use of eponyms has many pros. Eponyms and eponymous terms have more stable conceptual and terminological relations, in other words, they help achieve the unambiguity ideal. (Gorokhova & Kubyshko, 2019). Since eponymous terms provide precise and valuable data about the origin of the concept, they become important for the process of reconstructing of the analyzed concept. Eponyms are also usually shorter than any other technical terms. Furthermore, eponyms are neutral units which enable the concept to develop any notions. On the contrary, as has often been claimed, eponyms are not as easy to perceive or understand at first glance and less evocative to a layperson. Another minus of eponymous terms is that they can be misleading (Kazarina, 1998). Eponymous terms often mistakenly reflect certain discoveries and name concepts after people because of their social status, or in accordance with their nationality or gender, as a result of false recognition, and not because of their true merit. It is still a problem in a modern science whether an eponym should be the preferred term in a particular scientific or technical discourse. In spite of this, it is obvious that eponyms assist in many practical and technological affairs, solve a great number of language problems and lead to standardization of special terminology.

3. Research Questions

Theoretical investigations of English technical terminology, as well as many years of practical terminological work, using as a basis the general theory of terminology, have led to the formation and development of terminological funds of technical eponyms for many concepts in each special subject field. However, modern linguists, studying the classification and functions of eponyms in different spheres, note that an integral model of learning eponymous terms was not yet developed. This problem formed the basis of the analysis of eponyms which were extracted from English special terminology and classified into several thematic groups to denote certain concepts.

3.1. Concepts denoted with eponyms

Eponyms are understood as a combination of proper and common names denoting scientific, social, cultural and other concepts (Novinskaya, 2013). The concept is one of the most important

categories of pragmalinguistics, functional stylistics and sociolinguistics (Gorokhova, 2019). It is relatively fixed types that are produced by each sphere of language use being a meaningful pattern in human interaction, communication and understanding (Gorokhova & Kubyshko, 2019). The issue of eponymous groups where eponyms and eponymous terms are used to denote a certain concept is one of the unsolved, insufficiently studied in modern linguistics.

3.2. Systematization of eponyms

At the same time, the main task of researchers is not to understand the final model of eponymous groups of English technical terminology, but to develop a complex system for analyzing eponyms, to classify them according to their features and to build their typology. Another problem and the task of the modern society is sharing the experience of systematization rules as fixed patterns to simplify and accelerate the process of communication.

4. Purpose of the Study

The purpose of the study is to identify the structural features of eponymous technical terms in English special terminology. In accordance with this goal, the following questions are answered:

- determine the technical terminology containing eponymous constructions and combinations
- identify thematic groups of eponyms and eponymous terms
- analyze abbreviations which are based on eponymous terms

5. Research Methods

The methods relevant for such an analysis are stipulated by the aim of identifying the nominations in which proper names act as the essential characteristic of a technical terminology. English technical terms that are manifested in the considered language in the form eponyms and eponymous terms can be presented on the basis of the method of continuous sampling from modern dictionaries and research materials, the method of contextual analysis using authentic text materials. The method of comparative analysis using an online search service, as well as the descriptive method necessary for identifying the peculiarities of the use of terminological models are used hereto. Such linguistic units contribute to the development of the special language and its creative renewal. The process of using eponyms and eponymous that occur in the professional field is actively manifested in English scientific and technical discourse. The appropriate linguistic units are used in the special language to a great extent simplifying and accelerating the process of communication.

6. Findings

A study of English technical eponymous constructions of special terminology made it possible to identify the main thematic eponymous groups where eponyms participate as the most important category of science and technology. The eponymous terms in these thematic groups are represented by terminological combinations which usually describe a fragment of a theory, or even the whole scientific theory, physical model, mathematical formula, system of laws etc. The formal structure of technical

eponyms demonstrates that mostly these are complex terms and terminological combinations which have a proper name in preposition to the appellative. Among complex terms, there are mainly eponymous hyphenated units, this indicates that scientists jointly research some aspect of knowledge and often simultaneously work on a problem independently of each other, perpetuating the merits of all scientists in one term. The analysis also shows that among the lexical units that function in English technical terminology eponyms and eponymous terms present certain difficulties in their decoding.

6.1. Thematic groups of technical eponyms

Generally, eponyms and eponymous terms are used to denote the most diverse concepts and are characterized by significant heterogeneity of the basic components of the nomination (Leichik, 2007). However, a study of the English technical eponymous constructions of special terminology made it possible to identify the main thematic eponymous groups, demonstrated in Table 01, where eponyms and eponymous terms are used to denote certain concepts:

Table 01. Thematic groups of eponyms and eponymous terms

Devices	Laws	Values	Models	Methods	Toponyms	Brand names	Graphic images
Franklin	Boltzmann law distribution	Oechsle scale	Arrhenius equation	Alfrey-Price method	Pittsburgh method	LOMO process	Debyepowder diagram
Crucible Gooch	Arrhenius law	Mach number (Ma)	Mark-Houwink	BET method	Japan golding	Kodelon	Laue pattern
Pullman	Charles law	The Mohs scale of mineral hardness	Newtonian liquid	Dow process	Plaster of Paris	Hydroson cleaning	Langmuir isotherm
Scheibel column	Maxwell-Boltzmann law	Hounsfield scale	Hamiltonian		Vienna lime	Kanigen process	Gibbsenergy diagram
Colt	Hick-Hymansches law	Avogadro constant	Boltzmann integral			Mircometritics AutoChem™	
Bunsen flask	Yerkess-Dodson law	Staudinger viscosity index					
Sohxlet apparatus		Thiele modulus					

Any terminology is characterized by correlation within a certain set of categories, i.e. a sequence of meanings (Gorokhova, 2019; Gorokhova & Kubyshko, 2020). The study of technical eponyms and eponymous terms allows to identify the main categories of concepts in which they exist. These are laws and values, graphic images and methods, devices and models, toponyms and brand names. The category of devices is represented by the majority of the eponyms, which makes up 20% of the total number of eponymous terms of the studied technical units. The final visual classification was made according to the categories of concepts of eponyms and presented in the form of a diagram (Figure 01).

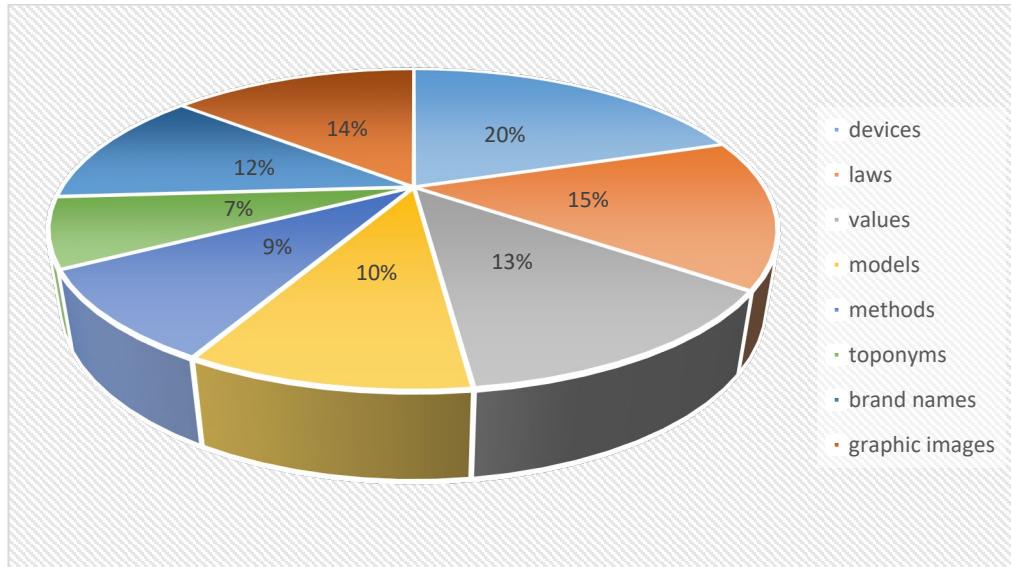


Figure 01. Basic thematic groups of eponymous technical terms

6.2. Eponyms in English technical abbreviations

The functioning of eponyms and eponymous terms as a part of English abbreviations occupies a special place in technical terminology. As a result of the study, one can conclude that most of the eponymous combinations that are part of the abbreviations are formed by the structure: proper name + common noun:

- C4 - Cyclone 4 Program / Launch Vehicle
- DFL - David Florida Laboratory (in Ottawa)
- AM low - Archibald Montgomery low (crater)
- GSFC - Goddard Space Flight Center
- HST - Hubble Space Telescope
- JPA - Johnston Plasma Analyzer
- LaRC - Langly Research Center
- RAL - Rutherford Appleton Laboratory
- RPA - Reme Plasma Analyzer
- LMLV - Lockheed Martin Launch Vehicles
- KLP - Kennedy Launch Pad (launch pad of the Kennedy Space Center)
- LLNL - Lawrence Livermore National Laboratory
- BBN - Backus-Naur-Notation formula

The analysis of abbreviations which are based on eponymous terms allows to make the following conclusions: 1. all eponymous units are unambiguous and have no synonyms; 2. most of the eponyms are formed according to the scheme: proper name + common name; 3. the eponymous terms are formed on the basis of the names of certain inventors, countries titles etc.

7. Conclusion

The formal structure of eponyms and eponymous terms shows that they fully comply with traditionally accepted models of words and phrases of general language (Gorokhova, 2019; Gorokhova & Kubyshko, 2020; St-Pierre & Kar, 2005). The analysis of the structural characteristics of eponyms and eponymous terms allows to conclude that an eponymous unit is the initial part of the terminological structure and usually stands in preposition to the appellative. As for complex terms, they are mainly terms with hyphenated structure. This, most likely, testifies to the collaborative or simultaneous work of scientists whose merits were immortalized in a single term. The study makes it possible to come the following conclusions: 1. several types of technical eponyms and eponymous terms, anthroponyms, toponyms etc. are distinguished in special language; 2. the most frequent terminological units are determined within basic thematic groups of eponymous technical terms; 3. the presence of eight thematic groups in which eponyms and eponymous terms function is established; 4. the wide use of eponymous terms in technical terminologies is proved; 5. motivation of technical eponyms is determined; 6. pros and cons of eponymous terms are analyzed; 7. the theory that eponyms and eponymous terms reflect an anthropocentric picture of the world is confirmed; 8. abbreviations which are based on eponymous terms are analyzed; 9. the theory that eponyms are an active source of replenishment of the terminological system is demonstrated; 10. the theory that eponyms and eponymous terms simplify and accelerate the process of communication is argued.

It should be noted that eponymous terms undoubtedly affect the knowledge of the world and are an important source of information about the great scientists, researchers and inventors who have made an invaluable contribution to the development of sciences. In eponyms a person manifests itself as a linguistic personality, reflecting the interconnection of language and culture and represents a fixed national and cultural prototype becoming a kind of ethnolinguistic cultural marker (Gorokhova & Kubyshko, 2020; Kazarina, 1998; Vakhrameeva, 2003). The presence of a large number of eponymous units in the special terminology indicates that the individual is often at the center of all processes that occur in the language (Gorokhova & Kubyshko, 2020; Novinskaya, 2013; Pumpyansky, 1981). The investigation evidently demonstrates that the eponymization tendency will never stop. In almost every scientific research in a particular field, discoveries related to the names of scientists are reflected. So, eponyms play an important linguistic role in various fields of scientific knowledge. Their great aim is mainly to replace long and complex language structures with shorter and more concise ones. The eponymous units form an important part of the terminology of many areas of professional activity, forming and replenishing the scientific and technical discourse (Manerko, 2012; Vinogradov, 2014; Vishnevskaya, 2006).

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