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EPONYMY AS AN INTEGRAL PART IN ENGLISH TERMINOLOGY OF OIL AND GAS TRANSPORTATION AND STORAGE

The paper describes the research results of English terminological combinations containing eponyms in the sublanguage of oil and gas transportation and storage. The explanation is given of how terms-eponyms enter into industry-specific terminology. The view points of Russian and foreign terminologists on eponyms in a scientific and technical terminology and the functions which eponyms perform are presented. Models of formation for eponymic terminological combinations are analyzed, their structure and composition are examined. The phenomena of abbreviation and polysemy in the described terminology are defined.

Keywords: English terminology, eponymy, anthroponyms, toponyms, eponymic terminological combinations (ETCs), initial abbreviation.

Any scientific and technical sphere has its specific terminology including both general scientific and highly specialized terms, characteristic for a specific scientific or technical area. The linguistic phenomenon as terms-eponyms in the sublanguage of transport and storage of oil, oil products and gas is examined in this article. The linguists having a sufficient practical experience in scientific researches believe that a language on the whole, including the language of science is not a closed, self-contained system, it is inextricably linked with a society, its development, with a scientific and technical progress, with discoveries and inventions, it is a reflection and continuation of various processes, which continuously take place in a society. As a consequence, any scientific or technical sphere puts in the forefront outstanding scientists both theorists and practitioners whose names are assigned to those discoveries or inventions, which were made by them. As a result, such language phenomenon as eponymy emerged, the roots of which go to antiquity times.

Eponym originates from a Greek word *epionimos* (*epi* — after + *onoma* — a name) that is called after someone's name or giving a name to someone [1].

Russian researchers as V. M. Leychik [2], A. V. Superanskaya [3], E. M. Kakzanova [4], L. B. Tkachyova [5], E. V. Kerber [6], N. V. Novinskaya [7, 8], Yu. A. Gavrileyko [9] and many others studied the problems of terms-eponyms. According to V. M. Leychik, an accredited authority in terminology studies, eponyms are the terms, which structure contains a proper name, the name of the author in honor of which some scientific phenomenon, discovery or invention is named for [2, p. 12], or at the request of the author a discovery obtains the name of a famous scientist.

K. S. Thomas considers that the usage of eponyms is well established in science, as well as in non-scientific fields. Eponyms are the highest reward to those who were founders of new branches of science, who evolved fundamental methods and procedures to contribute into a further development of science [10, p. 405]. Guillaume Cabanac writes that eponymy is a very wide spread and long-standing phenomenon in journals of physics, with a permanent and growing importance [11, p. 1637].

Typical examples are the terms containing a proper name (as an element of such structures) in the field of exact sciences – physics, chemistry, mathematics:

Archimedes' Principle (physics) [12];
Pythagorean theorem — (geometry) [13];
Castner cell — (chemistry) [14];
Tesla coil — (physics) [1];
Wurtz reaction — (chemistry) [1];
Gaussian curvature — (geometry) [1];
Schrödinger equation — (higher mathematics) [1].

Terms-eponyms perform not only their direct function in nomination of scientific notions, they are also language memorials to their creators. At the same time, according to V. M. Leychik's point of view, eponyms, assuming a nominative function, do not explain the meaning of notions, phenomena or objects described by them [2, p. 13]. N. V. Novinskaya agrees with V. M. Leychik, she thinks that the problem of a proper name's semantics remains a complex and a controversial problem [7, p. 149]. A. V. Superanskaya, unlike V. M. Leychik believes that proper names are inexhaustible source for formation of new terminological combinations, moreover, by means of such eponymic terminological combinations scientific notions and ideas obtain more exact and detailed definition [3, p. 114]. It should be noted that in a scientific, professional environment terms-eponyms used by scientists and researchers facilitate their communication, enable faster and adequate comprehension of the existing tasks and problems.

K. S. Thomas referring to S. M. Stigler agrees that establishing of eponyms in science literature may take a rather long period of time from several years to thirty years, however researchers quite often resort to using eponyms both common and wide-spread and new ones:

Buckley–Leverett two-phase model — the model of two-phase filtration in porous media [15, p. 3];

Craig's rule — Craig theorem about independence of quadratic forms in a disperse analysis [15, p. 3].

Following E. M. Kakzanova who identifies the terms containing proper names formed from surnames of scientists or researchers as anthroponyms [4, p. 22], this term shall be used further on. There are 39 terminological combinations belonging to this category in the sampling of sublanguage of oil and gas transport and storage.

N. V. Novinskaya notes that terms-eponyms are formed by the same structural-grammatical principles, as terminological combinations in general, i.e. eponyms can be classified into simple terms and terminological combinations, however, a proper name is a necessary component existing in these structures [8, p. 36].

The most part of eponymic terminological combinations in our sampling is two-component, where one element is presented by a proper name (the inventor's surname), another one is a common noun. These terminological combinations are built according to the pattern: a noun (proper noun) + + a noun (common noun):

Barlow's equation — a formula, used for computing the strength of cylinders under pressure [14];

Carnot cycle — a hypothetical cycle consisting of two isothermal and two isentropic processes [14];

Engler viscosity — viscosity according to Engler [16];

Izod tester — a device to determine an impact force according to Izod [17];

Garbutt rod — Garbutt's rod (a rod for deep well pumps) [15];

Levenstein process — a process to produce mustard gas from ethane and sulfur chloride [14];

Poisson's ratio — Poisson's coefficient [16];

Rockwell hardness — hardness by Rockwell's scale [16].

Besides two-component terms-eponyms there are terminological combinations which are second in number in the sampling and consist of three or more elements formed according to the following patterns:

1. Noun (prop. noun) + noun (prop. noun) + + noun (com. noun):

Joule-Thomson expansion — the expansion of a fluid according to Joule-Thomson cycle [13];

Knudsen-Langmuir equation — the relationship of molecular distillation rate to vapor saturation pressure, solution temperature, and molecular weight in the process of evaporation [14];

Lewis-Matheson method — the method of calculation to design a multicomponent distillation column [14];

Woods-Lubinski theory — Woods-Lubinski theory about a pendulum behavior of a drill string in a well, which explains a borehole deviation from a vertical line [16];

Hagen-Poiseuille's law — the physical law of hydrodynamics for Poiseuille's flow, that is the established flow of viscous, in a special case, incompressible liquid in a thin cylindrical pipe [16].

2. Noun (prop. noun) + noun (com. noun) + noun (com. noun):

Garret gas train — Garret's gas analyzer [16];

Brinell hardness test — a method to determine hardness according to Brinell [16].

Multicomponent eponyms are also presented by four- and five-component terminological combinations:

Shore dynamic indentation test — a test to define hardness by Shore [16];

Pensky-Martens closed cup — a definition of a flash point in a closed crucible by Pensky-Martens method [16];

Baker sure shot cement plugs — the lower and upper plugs for cementing of wells (produced by «Baker») [16];

Bierbaum scratch hardness test — a test for the hardness of a sample by microscopic measurement of the width of scratch made by a diamond point under preset pressure [14].

This group of terminological combinations including anthroponyms in its structure is the smallest in number that is explained by the tendency of language means economy characteristic to any terminology relating to a scientific and technical sphere.

Besides four- and five-component terminological combinations, the author has revealed four six-component eponymic terminological combinations:

Organization of Arab Petroleum Exporting Countries (*OAPEC*) — the organization of Arab countries exporting oil [16];

Screw End American National Acme Thread (*SE NA*) — a screw end according to the standard of American Institute of mechanical engineers [16];

Screw End American National Coarse Thread (*SE NC*) — a coarse thread end according to the standard of American Institute of mechanical engineers [16];

Screw End American National Fine Thread (*SE NF*) — a fine thread end according to the standard of American Institute of mechanical engineers [16].

Given examples of eponymic terminological combinations are used in a short form as their application in a full form is too complicated and inconvenient both for a written form, and for an oral speech. The eponyms in the above-mentioned terminological combinations are presented by toponyms, however, in contrast to the vast majority of eponymic terminological combinations (ETC) of the sampling where eponyms are presented by nouns (proper names), in six-component ETCs an eponymic part is expressed by an adjective.

The phenomenon of abbreviation, widespread in a scientific and technical terminology, influences the formation process of English terms-eponyms in terminology of transport and storage of oil and gas, and the most part of such terminological units (TU) are initial abbreviations, for example:

COC [*Cleveland open cup* (*flash point*)] — a method of definition of a flash point in an open crucible [14];

PMCC [*Pensky-Martens closed cup* (*flash point*)] — a definition of a flash point in a closed crucible by Pensky-Martens method [16]. The apparatus was called after a German engineer and scientist Adolf Martens and a German mechanic Berthold Pensky, it was invented in 1873.

RHN [*Rockwell hardness number*] — a number of hardness by Rockwell [16]. Hugh and Stanley Rockwell were American inventors who worked in a large company producing bearings in Connecticut (USA), in the first quarter of the 20th century.

SUS [*Saybolt universal seconds*] — universal seconds by Seybolt [16].

The units of kinematic viscosity in which Seybolt viscosimeters produce results of measurement. Brothers Edward and George Seybolt developed analytical procedures for oil industry at the end of the 19th century, the most known of which was a determination of viscosity and color of oil.

The initial abbreviations given as examples contain anthroponyms Rockwell, Seybolt, Pensky and Martens — the surnames of inventors and researchers of the above-mentioned technical operations, devices and physical notions.

The initial abbreviations including geographical names in their structure are less frequent, for example:

SOCAL [*Standard Oil Company of California*] [14];

SOHIO [*Standard Oil Company of Ohio*] [16];

SOCONY [*Standard Oil Company of New York*] [16].

Despite the group of initial abbreviations, containing geographical names is small in number, the presented examples clearly demonstrate a steady tendency of economy of language means in application of complicated multicomponent terminological combinations.

The following example of initial abbreviation is interesting as an illustration of polysemy, which takes place in the presented terminological system:

R [Reamur] — 1. a temperature Reaumur scale [16], it was named after the French scientist Renй Reaumur in 1730;

2. *R* [Rankine] — a temperature Rankine scale [16], from the surname of Scottish physicist of the 19th century William Rankine.

In the initial abbreviation VAC [volts of alternating current] [13], the unit of voltage measure is called after the surname of Italian physicist and physiologist Alessandro Volt. The proper name of Volt passed into the category of common nouns and its full form, opposite to the contracted variant is written in a small letter and can be used in plural.

Another type of abbreviations found in the sublanguage of transport and storage of oil and gas is cutting off a part of a root and ending of an anthroponym or a toponym:

Re [*Reynolds number*] — Reynolds number [15] (the value characterizing liquid flow conditions, named after English physicist Osborne Reynolds of the end of the 19th - the beginning of the 20th century);

Sp [*Sparta*] — Sparta (a group suite of Claiborn Eocene in Tertiary system) [16]. The abbreviation received its name from the city of Sparta existing in Ancient Greece.

Nig [*Niagara*] — Niagara (a series of Silur in the states of New York, Michigan, Ohio, Wisconsin and Illinois) [16]. In this abbreviation we can see not only dropping of a final part of the root, but also a loss of a vowel in the middle of the word. Thus two linguistic phenomena take place in the formation of the term: contraction and apocope.

The examples of terminologization of language units borrowed from a common-literary language into the sublanguage of transport and storage of oil and gas are abbreviations consisting of two components:

St. Gen. [*Saint Genevieve*] — Saint Genevieve (a suite of Meramec series in the Mississippi system) [13]. The name is obtained from a name of Sancta Genovefa living in the end of the 5th century in the territory of Gallia (modern France), who later became the patroness of Paris.

St L [*Saint Louis lime*] — St. Louis limestone (a suite of Meramec series in the Mississippi system [15]. The formation of limestone geological sedimentary is called after the city of St. Louis (USA) which is located nearby, the city in its turn was named by the French colonists after Louis IX (Saint).

According to L. B. Tkachyova, short forms of multicomponent terminological combinations are widely used in the language of science and technology [5, p. 53] and English eponymic terminological combinations of the studied terminology are not an exception because, due to the development of technological processes in oil and gas industry there is a need to name new processes, devices, equipment, etc.

The most reasonable way to solve the problem, is to use terminological combinations containing anthroponyms (which are quite understandable in the professional environment) as well as shortenings, including eponyms-abbreviations.

Besides terminological combinations with anthroponyms, the group of terms-eponyms containing names of the cities, geographical indications is identified. These terminological combinations are called toponyms:

Mississippian system — Mississippian system (Lower Carbon, USA) [13]. The first component of TC is named after the Mississippi River, the second is a common noun (a toponym + a com. noun);

Plaster of Paris — stucco, burnt plaster [13], the terminological combination consists of three elements: com. noun + preposit. + toponym. The toponym is formed from the name of the city of Paris where near Montmartre area approximately from the middle of the 15th century plaster of Paris was extracted;

Portland cement — artificial cement [12], (toponym + + com. noun), this terminological combination obtained its name from Portland island in the County of Dorset, England.

Special attention should be paid to a group of terms-eponyms containing proper nouns, the names of companies or firms making professional tools, components, devices and mechanisms:

Hughes bit — a drilling bit by Hughes Tool Co [16];

Linde copper sweetening — a process of desulfurization of gasolines using chemicals manufactured by Linde [14];

Reda pump — an electrical centrifugal pump (produced by Reda) [16];

Reed roller bit — a cross section cone bit by Read Tool Co [16];

Chevron-Honeywell UOP — American corporation Chevron-Honeywell Universal Oil Products [17, p. 357];

Shell's Fluid Catalytic Cracking — the process of Fluid Catalytic Cracking conducted in Shell units [17, p. 294].

The name of a manufacturing firm as well as in any toponymic or anthroponymic terminological combination performs a definition function, and an expert in a specific area does not need any clarifications about general technical characteristics or a purpose of some tool or mechanism because the proper name means a kind of decoding of a certain eponym.

Thus, in the course of the research the following conclusions were made:

1. 72,5 % of a total number of eponymic terminological combinations (ETCs) in the sampling of the sublanguage of oil and gas transport and storage are two-component eponymic terminological combinations that confirms a general tendency of a rational and economic use of language units.

2. Multicomponent terminological combinations: three-component — 20 %, four-component — 1,5 % and five-component — 4,5 % are found in the analyzed terminology. Six-component eponymic terminological combinations are represented by 1,5 % and according to obvious reasons are generally used in a short form.

The above-mentioned percentages show that the quantity of four-, five- and six-component eponymic terminological combinations in total is only 7,5 %, compared with three-component ETCs. It should be noted that eponyms in the structure of aforesaid terminological combinations are more preferable, than even more complicated descriptive construction, which could be used instead of a proper name.

3. The main syntactic patterns of a term formation for two-component eponymic terminological combinations are:

1. Anthrop. noun + com. noun;
2. Topon. noun + com. noun;
3. Epon. noun + com. noun.

Three-component ETCs are formed by the following patterns:

1. Anthrop. noun + com. noun + com. noun;
2. Anthrop. noun + anthrop. noun + com. noun;
3. Com. noun +preposit. + topon. noun.

The short forms of eponymic terminological combinations are generally presented by initial abbreviations and only three units can be referred to apocope.

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ЭПОНИМЫ КАК НЕОТЪЕМЛЕМАЯ ЧАСТЬ АНГЛИЙСКОЙ ТЕРМИНОЛОГИИ ТРАНСПОРТИРОВКИ И ХРАНЕНИЯ НЕФТИ И ГАЗА

Статья описывает результаты исследования английских терминов-эпонимов в терминосистеме хранения и транспорта нефти и газа. Представлены способы вхождения эпонимов в отраслевую терминологию, даются точки зрения отечественных и зарубежных терминоведов на эпонимы в научно-технической терминологии, описываются функции, которые они выполняют. Рассмотрены модели образования терминологических сочетаний, включающих имена собственные, описана их структура и состав, отмечены явления полисемии и аббревиации в исследуемой терминологии.

Ключевые слова: эпонимия, английская терминология, антропонимы, топонимы, эпонимические терминологические сочетания (ЭТС), аббревиация.

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