

On the origin and the structure of Latin medical adjectives of the *coccygeus* type*

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This paper concerns the issue of the length of vowel *e* in the final *-eus* of the Latin medical terminological adjectives of *coccygeus* type. These adjectives are not associated with ancient Latin nouns and do not have a digraphic combination in the Greek prototype at the junction of the noun base and the adjective suffix: *anconeus*, *coccygeus*, *laryngeus*, *phalangeus*, *pharyngeus*. The lexemes were created by anatomists between the 16th and 18th centuries, mostly by Jean Riolan the Younger, James Douglas, William Cheselden, Christian H. T. Schreger. The spelling of these words with the final *-æus* in the work by Douglas in 1707 was a failed (and faulty) attempt to unify the spelling of Latin medical adjectives with a final *-eus*. The next try belonged to Cheselden (1713): he writes these lexemes with the final *-eus*. The artificial origin, the presence of two variants of the spelling (*-æus* and *-eus*) and of an identical in spelling Latin morpheme (*-ëus*), and the simplification of spelling of Latin medical terms are the reasons why different variants of the appearance of the Latin adjectives of *coccygeus* type exist: with finals *-æus*, *-ëus*, *-ëus*. At the same time, an original Latinized Greek adjective existed — *coccygius* (from κοκκύγιος, used by Pausanias). The author suggests changing the nomenclature spelling of the adjectives of *coccygeus* type, bringing them in line with the historical “living” appearance: *anconi*us, *coccygi*us, *laryngi*us, *phalang*ius, and *pharyng*ius. Until this change is carried out, it is recommended to consider ⟨*e*⟩ in the final *-eus* as a short vowel stressing the antepenultimate syllable.

Keywords: *coccygeus*, *coccygeal*, Latin anatomical terminology, nomenclature.

In medical anatomical terminology, there is no single representation concerning the vowel length denoted by the grapheme ⟨*e*⟩ in the Latin adjectives of the *coccygeus* type. To the group of adjectives of the *coccygeus* type, I refer the terms used by naming organs of the human body (muscles, ligaments, nerves veins, arteries) with the meaning ‘belonging to’ and ascending to the ancient Greeks nouns of the 3d decl. with a consonant stem: *anconeus* ‘anconal’ (from ἀγκών, ὤνος, ὄ ‘elbow’), *coccygeus* ‘coccygeal’ (from κόκκυξ, κόκκυγος, ὄ ‘cockoo’), *laryngeus* ‘laryngeal’ (from λάρυγξ, λάρρυγγος, ὄ ‘larynx’), *phalangeus* ‘phalangeal’ (from φάλαγξ, φάλαγγος, ὄ ‘bone between two joints’), *pharyngeus* ‘pharyngeal’ (from φάρυγξ, φάρυγγος, ἦ or ὄ ‘throat’), and derivatives from them (*subanconeus*, *sacrococcygeus*, *metacarpophalangeus*, *craniopharyngeus* etc.).

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Cherniavskii,¹ Nechai,² Arutiunova³ state that the vowel length in the final *-eus* depends on the origin of this word: they suggest writing *-ēus* in the adjectives borrowed from Greek and writing *-eus* in the Latin adjectives. To accurately determine the longitude of the vowel sound, authors recommend referring to dictionaries. In International Anatomical Terminology (*Terminologia Anatomica*), diacritics are absent. The data from the analysis of Russian medical Latin textbooks and dictionaries by Karuzin,⁴ Cherniavskii, Nechai, Provotorova,⁵ Arutiunova show that even within one work these adjectives are spelled differently, but the long ⟨e⟩ (*-ēus*) is more common (Table 1).⁶ At the same time, in dictionaries by Vol'fson, Arnaudov, Val'des, Kazachenok, Petrovskii, Tanaushko, Kozovik, Rudzitis, Astrauskas⁷ and in the textbook by Ivakhnova-Gordeeva⁸ the short ⟨e⟩ (*-eus*) for *coccygeus* is fixed.

Table 1. The number of word usage of adjectives of one type with different vowel lengths within one work

Work	Type	<i>coccygeus</i>		<i>pharyngeus</i>		<i>laryngeus</i>	
		<i>eus</i>	<i>ēus</i>	<i>eus</i>	<i>ēus</i>	<i>eus</i>	<i>ēus</i>
Karuzin 1928	d	10	24	1	29	0	7
Cherniavskii 2007	t+d	2	7	2	5	0	5
Nechay 2016	t+d	9	6	1	15	0	6
Provotorova 2021	d	0	2	0	2	0	2
Arutiunova 2022	d	0	2	0	2	2	0

d — dictionary, t — textbook.

The quantity of the sound denoted by the grapheme, due to the position occupied in the word, has a direct influence on stress placement in the term (*coccygéus/coccýgeus*). The aim of the study was to determine the correct option. For this, we first have to look at the origin and history of these words and then discuss their structure.

In 1757, Martin Shein completed the translation of *Anatomy* by Lorenz Heister (1727). It was the first time in the Russian anatomical nomenclature, that the term associated with the word *kopchik* (копчик ‘coccyx’⁹) appeared.¹⁰ It sounds like *kost’ kopchiko-*

¹ Cherniavskii 2020, 74.

² Nechai 2007, 34.

³ Arutiunova 2022, 22.

⁴ Karuzin 1928 (Карузин П. И. *Словарь анатомических терминов*. Ленинград, Москва, Государственное издательство, 1928).

⁵ Provotorova et al. 2021, 92.

⁶ When analyzing first three sources, I took into account both the lexemes themselves and their derivatives.

⁷ Vol'fson, Lushnikov 1957; Arnaudov 1964; Dvoretzkii 1976; Valdes, Veski 1982; Kazachenok 1990; Petrovskii 1983; Tanaushko 2002; Kozovik, Shipailo, Gusak 1965; Rudzitis, Plandere 1973; Astrauskas et al., 1980.

⁸ Ivakhnova-Gordeeva et al. 2012, 7, 56.

⁹ English lexeme “coccyx” was borrowed from Latin as a name of the organ. Latin *coccyx* is transliterated Greek κόκκυξ ‘cuckoo’.

¹⁰ The etymology of the word *kopchik* is unclear. However, it is interesting to mention that this lexeme is also associated with the name of the bird: *kopchik* or *kobchik* (кобчик) is red-footed falcon. I discuss this coincidence, as well as the etymology and causes of entrenching *kopchik* in Russian medical nomenclature in another article submitted to the journal “Russkaia rech”.

ва (кость копчиковая ‘coccyx bone’), which is a phrase with the connection agreement, transmitting the Latin phrase with the management — *os coccygis*.¹¹ However, I found a number of terms for the coccygeal muscle there as well: *мышка кости хвостцовой* (мышка кости хвостцовой ‘tail bone muscle’) and *мышка копчиковая* (мышка копчиковая ‘coccyx muscle’). They are translations for the Latin terms *musculus ossis coccygis* and *musculus coccygaeus* respectively.¹²

Heister’s description of the muscles of the coccygeal bone refers to the *Comparative Description of Muscles* by James Douglas (1707) and *The Anatomy of the Human Body* by William Cheselden (1713).¹³ In the latter example, this term is reprinted as forgotten at the end of the chapter on muscles¹⁴ and in the plural form with the omitted determined word in the terminological list — syllabus of the thirty-third lecture¹⁵ — “[*Musculi*] *Lumborum. Coccygei*”.¹⁶ In the preface to his work, Cheselden emphasizes the influence of Douglas, recognizing him as “the most pedantic and tireless Anatomist”, who presented the world with a more faithful description of muscles than all the previously existing ones.¹⁷ The authority of Douglas is based on numerous refinements of existing myological characteristics published in his fundamental work.

An example of this expanded understanding of human anatomy can be found in the following lines: “The bone joined to the extremity of the Os sacrum, called *Соссых*, has one muscle on each side, which I call *Соссыгæus* ***.”¹⁸ Three asterisks refer readers to the next passage: “The following Muscles, which have this Mark *** affixed to their Names, were discovered by the Author in his late Application to Myotomy.”¹⁹ According to this statement, the first to describe the coccygeal muscle as an independent unit was Douglas himself.²⁰ The discovery of a “new” organ obviously entailed the need for its designation.

Here I would like to emphasize one tendency in the derivation of words having “a special function, the function of naming a special concept, the name of an object or phenomenon.”²¹ Terminology, in the accepted understanding, is one of the language sub-systems that obeys the basic laws of the language and at the same time develops its own. “The general lexical tendency to model analogy has a decisive and almost mandatory character in terminology”, and “filling in the ‘terminological grid’ within a particular terminology is carried out much more consistently than in any other field of vocabu-

¹¹ Romanov 1997, 193.

¹² Romanov 2004, 164.

¹³ Romanov 2004, 164.

¹⁴ “The following Muscle should have been placed before the Muscles of the Loyns p. 73.” Here its spelling is given with an error — *cocygeus* (Cheselden 1713, 84).

¹⁵ In the first edition of the syllabus, the coccygeal muscle is assigned not to the lumbar muscles, but to the abdominal muscles and follows *levatoris ani* (Cheselden 1711, 23) — in the place it occupies in the second edition, *sacri* is listed (Cheselden 1711, 29).

¹⁶ Cheselden 1713, 263.

¹⁷ “It is with great pleasure I here acknowledge my Obligations to Dr. Douglas, that most Accurate and Indefatigable Anatomist, whose Assistance as been very useful to me in the Completing of this Work, and who has oblig’d he World with an exacter Description of the Muscles, than any extant” (Cheselden 1713, x).

¹⁸ Douglas 1707, 143.

¹⁹ Douglas 1707, xxxv.

²⁰ His formulation also reminds of this through the centuries: “...[muscles], which I call...” (Douglas 1707, 143).

²¹ Vinokur 1939, 49.

lary”²² In anatomical terminology, muscles traditionally get their name either by function, appearance or by the bones to which they are attached. The adjectives with the final *-æus* used for naming them are either derived from ancient Latin (*pectineus* ‘pectineal’) or borrowed through Latinizing from Greek (*glutæus* ‘gluteal’ from γλουταῖος). Petr Karuzin conveys the opinion of Joseph Hyrtl that adjectives of *pectineus* type should be written with e-breve; adjectives of *glutæus* type borrowed from Greek ones, the final of which is -αῖος, should be rendered by *-æus*.²³ (Hyrtl insists on writing adjectives of the *glutæus* type with a digraph *æe*.)²⁴

A linguistic lacuna that was created by the discovery of muscle tissue extending from the coccyx to the sciatic spine was filled with the term *musculus coccygæus*.²⁵ Douglas clarifies the choice of this adjective in the chapter ‘An Etymological Table of the Muscles’:²⁶ *coccygæus* is in the list of organs called “from the Parts they belong to”: *musculus coccygæus* is a muscle, belonging to the coccyx. When inventing this new term, Douglas used the adjective, which is absent in classical Latin. The corresponding Greek adjective, which could be Latinized in the same way as *glutæus* — from γλουταῖος or *peronæus* (‘peroneal’) from περοναῖος,²⁷ is also lacking. The anatomist explains the model of this word’s formation: “*coccygæus*, from κοκκυξ *cuculus*, i. e. *Os coccygis*, a Bone so called from its Shape”:²⁸ to the stem *coccyg-* the final *-æus* is added.

The analysis of ‘An Etymological Table of the Muscles’ and ‘A general index of the human muscles Described in this Treatise’ shows that Douglas writes with a final *-æus* 31 adjectives formed from 19 different nouns — both Latin (*brachiæus*, *cruræus*, *cubitæus*, *fibulæus*, *semifibulæus*, *pectinæus*, *tibiæus*, *poplitæus*, *radiæus*, *solæus*, *stapidæus*, *tibiæus*) and Greek (*anconæus* and *angonæus*, *coccygæus*, *glutæus*, *æosphagæus*, *peronæus*, *pharyngæus* and 11 its derivatives: *cephalo-pharyngæus*, *chondro-pharyngæus*, *crico-pharyngæus*, *glosso-pharyngæus*, *hyo-cerato-pharyngæus*, *mylo-pharyngæus*, *pterigo-pharyngæus*, *salpingo-pharyngæus*, *stylo-pharyngæus*, *syndesmo-pharyngæus*, *thyreo-pharyngæus*; *rinæus*, *salpingæus*). (I eliminated adjectives of the *hyoides/hyoideus* type, but I note that Douglas writes them the same way — with *-idæus*: *mastoidæus*, *hyo-tireoidæus* etc.)²⁹ For some adjectives, he gives doublets that he borrowed from the works of his predecessors: *cubitæus* (*cubitalis*), *pectinæus* (*pectinalis*), *radiæus* (*radialis*), *solæus* (*soleus*), *tibiæus* (*tibialis*).

I traced the spelling of lexemes he writes with *-æus* in the most significant works on the anatomy by the authors, whom Douglas addressed when creating his books: Jacobus Silvius (Jacques Dubois), Jean Riolan the Younger, William Cowper, Antonio Maria Valsalva.³⁰ I also added results of the study of works created before Douglas’ one, but to which he did not give a link — by Thomas Bartholin; and after it — by Cheselden, Heister, Schreger, and Caldani.³¹ The time intervals between publication dates of these works are

²² Reformatskii 1967, 122–123.

²³ Karuzin 1928, 15.

²⁴ Hyrtl 1880, 10.

²⁵ Douglas 1707, 143.

²⁶ Douglas 1707, 185–198.

²⁷ Hyrtl 1880, 10.

²⁸ Douglas 1707, 192.

²⁹ About the problem of the spelling of adjectives of the *hyoides/hyoideus* type see: Triepel 1921, 5–6.

³⁰ Silvius 1556; Riolanus 1618; Cowper 1694; Valsalva 1704.

³¹ Bartholinus 1665; Cheselden 1713; Heister 1752; Schreger 1794; Caldani 1802.

approximately 50 years. The data are presented below in Table 2. I did not trace the adjectives of the same root spelled with the suffixes *-al-* or *-ar-* (for instance, *tibialis* or *fibularis*), but I included lexemes *laryngeus* and *phalangeus*.

Collected data show that most of the listed adjectives had a variant spelling for several centuries — either with a final *-æus* (written as two letters or as ligature) or *-eus*. I could not identify patterns in accordance with which the authors used the first or second option. In some works — even in works published in different years and in different countries — I could find both variants within one book. For instance, *cephalo-pharyngæus* and *stylo-pharyngæus* are written in two variants in *Athropographia* by Riolan — as in published in 1618 in Paris, as in published in 1626 in Frankfurt.³² Bartholinus named Riolan the author of these terms as well as of *anconeus*³³ (Riolan himself used the spelling *angoneus*),³⁴ and indeed the use of these words before him was not found.³⁵ I note that the lexeme *æso-phagæus* first occurs in the work of 1602 by André du Laurens and is written with *-eus*, but a few years later in the books by Riolan, it is written in two versions.³⁶ Douglas was probably the first anatomist who tried to unify the system of anatomical adjectives with this variable final.³⁷ (The only exception is *interosseus*, which he continues to write with an *-eus*.)³⁸ Anatomist demonstrates the productivity of this word-formation model on the lexemes he did — “horrible dictu — ‘invent’”.³⁹ Referring to the data in Table 2, I can state with a high degree of certainty that Douglas invented not only the lexeme *coccygæus* but also *rinæus* and *stapidæus*⁴⁰ and first used *pharyngæus*, simplifying complex Roilanus’ terms.

Douglas’ attempt to unify the spelling of adjectives with the final *-eus* to the form in *-æus* failed. In some way, it was continued by Cheselden. In his work *The Anatomy of the Human Body*, which was published 6 years after Douglas’ book, all these adjectives are written with the final *-eus*. In the work by Cheselden, I could find the earliest usage of the lexeme *laryngeus*: “...they [the Carotid Arteries] detach Branches to every part about ‘em, which Branches are call’d by the Names of the Parts they are bestow’d upon; as, *Laryn-*

³² Cf. Riolanus 1618, 517; 561; 574 and Riolanus 1626, 483; 519; 528.

³³ “... And therefore *Riolanus*, *Spigelius*, and *Veslingius* terme it *Musculus Oesophagus*, being the Authors of that name. The second, is the *Spænopharyngæus* by them so called...”; “... but he [*Casseri* — V.R.] counts it a distinct Muscle, as later Anatomists *Riolanus* and *Veslingius* do, which they term *Anconeus*” (Bartholinus 1665, 125; 165). The work by Riolan included these terms was printed before works by Spigelius (Adrian van den Spiegel *De humani corporis fabrica Libri Decem*, 1627) and Veslingius (Johann Vesling *Syntagma anatomicum*, 1641).

³⁴ Riolanus 1618, 525: “Quatrus Angoneus situs est in posterioris cubiti flexura, quæ ἀγκῶν dicitur.” (“The fourth *Angoneus* is located in the posterior bend of the elbow, which is called ἀγκῶν.”) Cf. Cowper 1694, 152: “*Angonæus*. So called by Riolan from its Situation”.

³⁵ Schreger 1803, 118; 161.

³⁶ Laurentius 1602, 372; Riolanus 1618, 517.

³⁷ Cf. Hyrtl 1880, 11: “Ist aber das Hauptwort, aus welchem ein anatomisches Adjectiv gebildet wird, ein urlateinisches, wie *pecten*, *brachium*, *poples*, *femur*, *tibia*, *crus*, *solea*, und *cubitus*, so darf auf keinen Fall *pectinaeus*, *brachiaeus*, *poplitaeus*, *femoraeus*, *tibiaeus*, *cruraeus*, *solaeus*, und *cubitaeus*, welche Worte besonders in der *Myographia* von Jac. Douglas auffallen”.

³⁸ Douglas 1707, 149; 240; 246.

³⁹ Reformatskii 1968, 121.

⁴⁰ *Stapes* ‘stirrup’ is a lexeme formed artificially during the Middle Ages and used for naming bone in the middle ear (See: Mudry 2013, 588–592). The dictionary form is *stapes*, *stapedis*. As we can see, Douglas, when creating an adjective for this noun, changes the vowel in the stem: *stapedis* — *stapidæus*. He does not explain it. Nowadays the adjective *stapedius* is common.

Table 2. The usage of lexemes with different finals in works on anatomy from 16th to 19th centuries

LEXEME (WITHOUT A FINAL)	Silvius 1556	Laurens 1602	Riolanus 1618	Bartholi- nus 1669	Cowper 1694	Valsva 1704	Douglas 1707; Douglas 1777	Cheselden 1713	Heister 1752	Schreger 1794	Caldani 1808
ancon-	-	-	-	-æus	-æus	-	-æus	-æus	-æus	-æus	-æus; -æus
angon-	-	-	-æus	-	-	-	-æus	-	-	-	-
brachi-	-æus	-æus	-æus	-æus	-æus	-	-æus	-æus	-	-æus	-
coccyg-	-	-	-	-	-	-	-æus	-æus	-æus	-æus	-æus; -æus
crur-	-æus	-æus	-æus	-æus	-æus	-	-æus	-æus	-	-æus	-æus
cubit-	-	-	-æus	-æus	-æus	-	-æus	-æus	-æus	-æus	-
fibul-	-	-	-	-	-æus	-	-æus	-	-	-	-
semifbul-	-	-	-	-	-æus	-	-æus	-	-	-	-
glut-	gloutius	-	gloutius	-æus	-æus	-	-æus	-æus	-æus	-æus	-æus; -æus
œsophag-	-	-æus	-æus; -æus	-	-æus; -æus; -icæus; -icæus	-	-æus	-æus	-æus; -æus	-	-æus
pectin-	-	-	-æus	-	-æus	-	-æus	-æus	-æus	-æus	-æus; -æus
peron-	-æus	-æus	-æus	-æus	-æus	-	-æus	-æus	-æus	-æus	-æus; -æus
pharyng-	-	-	-	-	-	-	-æus	-	-	-æus	-æus; -æus
cephalo-pharyng-	-	-	-æus; -æus	-æus	-	-æus	-æus	-	-æus	-	-

chondro-pharyng-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
crico-pharyng-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
glosso-pharyng-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
hyo-cerato-pharyng-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
mylo-pharyng-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pterrigo-pharyng-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
salpingo-pharyng-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
stylo-pharyng-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
syndesmo-pharyng-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
thyr(e/o/eo)-pharyng-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
poplit-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
radi-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
rini-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
salping-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
sol-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
stapid-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
tibi-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
laryng-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
phalang-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*gææ, Thyroideæ, Pharyngeæ, Lingualis, Temporales, Occipitales, &c. ...*⁴¹ As *laryngeus* takes places in the near of the adjective *pharyngeus*, I assume that it was formed by analogy with this Riolanus-Douglas' lexeme, but with the replacement of ⟨æ⟩ for ⟨e⟩.

Of all the adjectives studied in this paper, the lexeme *phalangeus* seems to have appeared in (medical) Latin the latest. The author of *Synonymia anatomica* ('Synonyms of anatomical nomenclature'; 1803) by all uses of this term indicates his own authorship — Christian H. T. Schreger.⁴² In 1794 he published *Versuch einer neuen Nomenklatur der Muskeln des menschlichen Körpers* ('Attempt at a new nomenclature of the muscles of the human body') in which he wants to standardize the principle of naming muscles — to give the muscles the names of the places where they are attached.⁴³ But he uses different finals — as *-aeus*, as *-eus* (Table 2). In this work, he introduced the adjective *phalangaeus* with the final *-aeus*, probably under the influence of *pharyngaeus* and *coccygaeus*.⁴⁴

As we can see from the works by Heister, Schreger, and Caldani, in the second half of the 18th century and at the beginning of the 19th century, many forms of muscle names were used in parallel. In 1880, Hyrtl notes with resentment: "Die latinisirten Beiwörter: *laryngeus, pharyngeus, hyoideus* etc., dürfen absolut nie mit *ae* geschrieben werden, da im Griechischen die Adjective *λαρυγγαῖος, φαρυγγαῖος* or *ὕοειδαῖος* etc., fehlen, und der lateinische Ausgang *eus*, nur von Jenen, welche sich so Viels im Sprachverderben erlaubten, auch einem griechischen Hauptworte angehängt werden konnte. Diese Wörter gehören alle in den Kram der Barbarismen. Man hätte sie ganz gewiss nicht erfunden, wenn es für Kehlkopf, Schlundkopf, Zungenbein, ein einfaches Wort im Lateinischen gäbe. So aber gibt es nur ein *Caput fistulae, Caput gulae, Os lambdae*, aus welchen keine Adjective möglich sind."⁴⁵ But contrary to this urgent recommendation the creators of the international standard on anatomic terminology included such adjectives in the first version of this nomenclature — *Nomina Anatomica* (BNA; 1895). This edition holds the difference between adjectives of *glutaeus* type (they are written with diphthong) and of *laryngeus* type (they are written with *e*). Diacritic marks are absent, but in the 'Explanation of the index of names' Heinrich Krause gives eight examples of words with macrons and breves. Among these lexemes, there is one of interest here — *coccygeal*. Its Latin version is written with a macron above the *y* — *coccȳgeus*, which probably marks the need to emphasize this vowel.⁴⁶ It correlates to Hyrtl's idea that all the adjectives in *eus* have *e*-breve.⁴⁷

Despite this fact, Robert Kossmann, in his commentary on the *Nomina Anatomica*, deemed it expedient to indicate a Greek neologism where it was not possible to cite a term from classical Greek:⁴⁸ ὁ μῦς κοκκύγειος for *M[usculus]. coccygeus*.⁴⁹ I think Kossmann's neologism is a reconstruction of the possible ancient Greek phrase because in modern Greek an equivalent of *musculus coccygeus* is κοκκυγικός μύς.⁵⁰

⁴¹ Cheselden 1713, 118.

⁴² Schreger 1803, 163–165; 169.

⁴³ Schreger 1794, 5–7.

⁴⁴ Schreger 1794, 19; 23.

⁴⁵ Hyrtl 1880, 12.

⁴⁶ His 1895, 107.

⁴⁷ „Bei allen Adjectiven in *eus*, ist das *e* kurz“ (Hyrtl 1880, 11).

⁴⁸ Kossmann 1895, 451.

⁴⁹ Ibid. 466.

⁵⁰ Konstantindis 2005, 334.

Probably based on this example Hermann Triepel holds a different from Hyrtl's and Kossmann's position. He as well supports the spelling through the digraph *glutaeus*,⁵¹ criticizing both *glutēus* and *glutēus*, because of the need to correlate the Latin analogue with the Greek γλουταῖος,⁵² but consistently depicts the macron above the *e* in the words *laryngēus*, *pharyngēus*, and *coccygēus*, as well as in derivatives from them, for example, *chondropharyngēus*.⁵³ In the introduction, he raises the Latin final *-ēus* to the Greek *-ειος*,⁵⁴ which allows reconstructing the following Greek derivants: λαρύγγειος, φαρύγγειος, κοκκύγειος.

The last versions of international anatomical nomenclature — *Terminologia Anatomica* (1998 and 2020) — continues the unification of the adjectives reflected in works by Douglas and Hyrtl — adjectives of interest here are written with a final *-eus*.

This spelling simplification in some way neutralizes the difference in terms of their origin. Following this trend, in the authoritative textbook by Maksim Cherniavskii, the lexemes *pharyngeus*, *laryngeus*, *coccygeus* and *gluteus*, *peroneus* and others are in the same row.⁵⁵ The author suggests “placing the stress in these words on the penultimate vowel, as if a diphthong were written in the word”, commenting that “the suffix **e-us**⁵⁶ (**ae-us**) attached to the stem of the word (usually Greek one) ... gives the adjective the general meaning of ‘related, belonging’ and is stressed”.⁵⁷ In opposition by the stressed/unstressed point to this suffix, Cherniavskii gives a different one — “with a common meaning as ‘containing something, consisting of something’⁵⁸ — *-ēus*.⁵⁹ In classical Latin, the suffix **ēo/*ēa* marks more meanings: of material (*aureus* ‘golden’), resemblance (*virginus* ‘girlish’), and belonging (*flumineus* ‘of, in or belonging to a river’).

As we can see, the replacement of the digraph *ae* with the monograph *e* turned out to be possible due to the fact that each of them correlates with the phoneme [ē], led to *implication or blurring of the morpheme boundary*⁶⁰ and to the appearance of an “artificial” morpheme — the suffix **ēo/*ēa*, which is absent in classical Latin. Its existence is limited by medical terminology. The structure of this morpheme I show in Table 3, where I compare changes in the ratio of graphemic and phonemic composition: the transliteration of the Greek confluence of the final stem vowel and the true suffix into Latin began to be designated by one grapheme instead of two.

The generalization and simplification lead to the possibility to reconstruct the erroneous Greek lexemes given by Hyrtl — ἀγκωναῖος, κοκκυγαῖος, λαρυγγαῖος, φαλαγγαῖος, φαρυγγαῖος. However, ἀγκωναῖος, κοκκυγαῖος, λαρυγγαῖος, φαρυγγαῖος, φαλαγγαῖος, as well as ἀγκώνειος, κοκκύγειος, λαρύγγειος, φαρύγγειος, and φαλάγγειος as have not

⁵¹ Triepel 1921, 36.

⁵² In the 1921 edition, Triepel has γλουτιαῖος, which probably should be attributed to the typesetter's error (Triepel 1921, 36).

⁵³ Triepel 1921, 45; 61; 21; 20.

⁵⁴ Ibid. 5.

⁵⁵ Cherniavskii 2007, 74.

⁵⁶ The author does not put a longitude sign.

⁵⁷ Ibid.

⁵⁸ Ibid.

⁵⁹ This morpheme is not indicated by the author and was identified on the basis of a number of examples that are given: *ósseus* — bony, *félleus* — bile, *cartilagíneus* — cartilaginous” (Cherniavskii 2007, 74).

⁶⁰ Cf. the morphemic structure of the Russian lexeme *sem'ia* (семья ‘family’), where one grapheme *ia* (я) designates two phonemes /j/ and /a/. The phoneme /j/ belongs to the root *-sem'i-* (-семь-) and /a/ (-a) is an ending.

Table 3. Changes in the ratio of graphemic and phonemic composition of the finals of Latinized Greek adjectives due to spelling simplification

	Greek finals			Latinized Greek finals			Latinized Greek finals after spelling simplification		
	m	f	n	m	f	n	m	f	n
Graphemic composition	αιος	αιη	αιον	<i>aeus</i>	<i>aea</i>	<i>aeum</i>	<i>eus</i>	<i>ea</i>	<i>eum</i>
Morphemic structure	α-ιο-ς	α-ιη	α-ιο-ν	<i>a-eu-s</i>	<i>a-ea</i>	<i>a-eu-m</i>	<i>eu-s</i>	<i>ea</i>	<i>eu-m</i>
Phonemic composition	*a-io-s	*a-ia-∅	a-io-n	*a-io-s	*a-ia-∅	a-io-n	*aio-s	*aia-∅,	*aio-n

been, as could not have been formed in the classic Greek language in accordance with its grammar. The adjective final -ειος is a consequence of the compounding of the suffix -ιο-/-ια — with the preceding vowel of a stem of the noun, from which the adjective is formed: δικά-ιο-ς — δίκη; οἰκε-ιο-ς — οἶκο-ς; βασιλε-ιο-ς — βασιλεύ-ς; θέρε-ιο-ς — θέρος (the stem θερε-).⁶¹ According to this model, the Greek prototype of *glutaeus* was formed: γλουτ-αίο-ς — γλουτός.

The stem of the noun κόκκυξ ends in a consonant (κοκκυγ-), so the formation of an adjective will occur according to the same model as e.g. in πάτριος from πατρ-: κόκκυξ to κοκκύγιος. In fact, κοκκύγιος can be considered the only correct denominal adjective for κόκκυξ. Triepel indicates the adjective in his dictionary noting, en passant, that in ancient Greek it once existed as the name of a mountain ‘related to the cuckoo’ (ὄρος κοκκύγιον — Cuckoo Mountain).⁶² This indeed is found in book 2 of Pausanias *Description of Hellas*: ἱερά δὲ καὶ ἐς τόδε ἐπὶ ἄκρων τῶν ὄρων, ἐπὶ μὲν τῷ Κοκκυγίῳ Διός, ἐν δὲ τῷ Πρωνί ἔστιν Ἥρας· καὶ τοῦ γε Κοκκυγίου πρὸς τοῖς πέρασι ναός ἐστι ... (2. 36. 1–2: “Altars are still on the tops of the mountains: on Cuckoo Mountain — to Zeus, on Pron — to Hera. There is a temple at the edge of Cuckoo Mountain ...” etc.) accompanied by the etiological myth about Zeus transformed into a cuckoo. A more or less persistent use of κοκκύγιος in geographical contexts is further confirmed by the parallel in Ps.-Plut. *De fluv.* 18. 10 and the Hesychian gloss: κοκκυγίαν· ἄνεμον, οἱ Κροτωνιάται — a certain kind of wind was thus called by the inhabitants of Croton a “Cuckoo Wind”.

The Latin counterpart can be found in *Harper’s Dictionary of Classical Literature and Antiquities* — *coccygius*.⁶³ In both Latin and Greek, the suffix *io/*ia will mark in the adjective the meaning of belonging to something (in Greek: “*which pertains or belongs in any way to a person or thing*”;⁶⁴ in Latin: “*appurtenance, belonging to*”⁶⁵). The artificial origin, the spelling simplification, and the presence of an identical in spelling morpheme are the reasons why four spellings of the final of the Latin adjective “coccygeal” exist. Below I characterize each type of existing Latin lexeme of the meaning “coccygeal”:

⁶¹ Smyth 1920, 236.

⁶² Triepel 1921, 21.

⁶³ Peck 1897, 376.

⁶⁴ Smyth 1920, 236.

⁶⁵ Lane 1898, 35.

- 1) *coccygius* — final *-ius* — is a lexeme formed according to the laws of the Ancient Greek and Latin languages, having the necessary meaning;
- 2) *coccygaeus* — final *-aeus* — is a lexeme formed artificially — mistakenly, endowed with the necessary meaning;
- 3) *coccygēus* — final *-ēus* — is a lexeme representing a simplified spelling of the previous one;
- 4) *coccygeus* — final *-ēus* — is a lexeme, formed artificially, but according to the principles of the Latin language, and having the necessary meaning.

To sum up, within the anatomical terminology, the lexeme *coccyg(a)ēus*, as well as *pharyng(a)ēus*, *laryng(a)ēus*, and others (formed by the type of *glut(a)ēus*⁶⁶) have right to exist probably only *honoris causa* — in memory of their creators among which are Jean Riolan the Younger, James Douglas, William Cheselden, Christian H. T. Schreger. (Lexemes of the *coccygeus* type seem to have come largely from Riolan's writings.) The appropriate thing to do would be to change the nomenclature spelling of these words, bringing in line with the historical “living” appearance first *coccygius*, and by analogy with it *anconius*,⁶⁷ *phalangi*, *pharyngius*, *laryngius*, and derivatives — adjectives that do not belong to the group associated with ancient Latin nouns, and would not have a digraphic combination in the Greek prototype at the junction of the noun base and the adjective suffix.

Until this change is carried out, I would recommend stressing the third syllable from the end in words of this type for reasons that allow these lexemes to be integrated into the system of Latin anatomical terminology adequately to the norms of the Latin language: in the word-formation chain of these adjectives, there will be no “cloudy” links, it will be consistent: from the Latinized Greek noun a Latin adjective is formed by means of the Latin language: κόκκυξ — *coccyx* — *coccyg* + **ēo*, **ēa* — *coccygeus*, *coccygea*, *coccygeum*; the phonetic appearance of the word will be as close as possible to the phonetic appearance of the true adjective due to the coinciding position of stress and reduction of the first post-tonic vowel.

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⁶⁶ For the spelling see: Nechay 2016, 63.

⁶⁷ Cf. Ἀγκώνιος, -α, -ον ‘of Ancona, Anconite’ used by Stephanus of Bizantium (Adrados 1989, 25) to name the people of the city that “was situated on a promontory which forms a remarkable curve or elbow, so as to protect, and almost enclose its port, from which circumstance it derived its Greek name of Ἀγκών, the elbow”. Pliny, apparently relying on popular etymology, regards it as named from the “elbow” formed by the coast line (*in ipso flectentis se orae cubito*, 3. 111. 5). It is worth noting that *neutr.* ἀγκώνιον is also found in medical context: Galen *De musculorum* IV, 451, 15 Knobl.: ἐπὶ τοῦ κατ’ ὀλέκρανον ἄρθρου τὸ καλούμενον ἀγκώνιον.

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О происхождении и структуре латинских медицинских прилагательных типа *coccygeus*

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В статье рассматривается вопрос о количестве гласного *e* в финали *-eus* латинских медицинских терминологических прилагательных типа *coccygeus*. В данную группу входят прилагательные, не связанные с древнелатинскими существительными и не имеющие диграфа в греческом прототипе на стыке основы и суффикса: *anconeus*, *coccygeus*, *laryngeus*, *phalangeus*, *pharyngeus*. Автор исследовал историю этих лексем и обнаружил, что они были искусственно созданы анатомами в период с XVI по XVIII век: Жаном Риоланом (младшим), Джеймсом Дугласом, Уильямом Чеселденом и Кристианом Г. Т. Шрегером. Написание этих слов с финалью *-æus* в работе Дугласа 1707 года было неудавшейся (и неудачной) попыткой унифицировать написание латинских медицинских прилагательных на *-eus*. Следующая такая попытка принадлежит Чеселдену (1713), который пишет такие лексемы, используя финаль *-eus*. Искусственное происхождение, наличие вариантов написания (*-æus* и *-eus*) и идентичной по написанию латинской морфемы (*-ēus*), а также упрощение написания латинских терминов стали причинами появления различных вариантов прилагательных типа *coccygeus*: с финалями *-æus*, *-ēus*, *-ëus*. В то же время существовало исконное латинизированное греческое прилагательное — *coc-*

сугиус (от *κοκκυῖος*, что встречается у Павсания). Автор статьи предлагает изменить номенклатурное написание прилагательных типа *соссугеус*, приведя их в соответствие с историческим «живым» обликом: *анconiус*, *соссугиус*, *ларингиус*, *фалангиус* и *фарингиус*. До тех пор, пока данные изменения не будут осуществлены, рекомендуется считать ⟨e⟩ в финали этих лексем кратким и ставить ударение на третий от конца слог.

Ключевые слова: *соссугеус*, копчиковый, латинская анатомическая терминология, номенклатура.

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