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THE HISTORY OF LATIN TEETH NAMES

POVIJEST LATINSKIH NAZIVA ZUBA

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Summary

This paper aims to give an account of the Latin naming of the different types of teeth by reviewing relevant historical and contemporary literature. The paper presents etymologies of Latin or Greek teeth names, their development, variants and synonyms, and sometimes the names of their authors. The Greek names did not have the status of official terms, but the Latin terms for particular types of teeth gradually established themselves. Names for the incisors, canines and molars are Latin calques for the Greek ones (tomeis, kynodontes, mylai), dens serotinus is an indirect calque of the Greek name (odús) opsigonos, and the term pre-molar is created in the way which is now common in modern anatomical terminology, using the prefix prae- = pre and the adjective molaris. The Latin terms dentes canini and dentes molares occur in the Classical Latin literature, the term (dentes) incisivi is found first time in medieval literature, and the terms dentes premolares and dens serotinus are modern-age ones.

Key words: *anatomical nomenclature; teeth names; history*

Introduction

The history of medical terminology forms an integral part of the history of medicine itself. Medical terms reflect the state of knowledge at the time when they originated, and it is fascinating to follow their emergence, spread,

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"fight" with other similar terms, then either their disappearance or "victory" over their remaining rivals. The aim of this contribution is to account for the fate of a microsystem in anatomical nomenclature, the Latin naming of the different types of teeth from the point of view of terminology as a linguistic discipline. There are some well known dictionaries dealing with anatomical terminology. *Onomatologia anatomica* by Josef Hyrtl (1880), the largest one, *Onomatologia anatomica nova* by Juan José Barcia Goyanes (1978-1993), and *Dizionario etimologico storico dei termini medici* by Enrico Marcovecchio (1993). All offer etymologies of Latin or Greek teeth names, their development, variants and synonyms, and sometimes the names of their authors; however, all the explanations need some correction or addition.

Dens incisivus

The name *dens incisivus* (Lat. *incidere*, to cut) is a calque of the Greek *tomeis* (Gr. incisors), and as Galen (139 – 210 AD) writes, these teeth get their name from the verb *temnein* (Gr. to cut), because they cut all food as with a knife (*De oss. ad tir.* II,754 K.). Hippocrates' corpus (430 – 350 BC) did not recognize this type of tooth, but Aristotle (384 – 322 BC) already distinguished them, but called them *prosthioi*, i.e. front teeth (*De part. anim.* III,1 : 661b). Prior to Galen, i.e. before the second century AD, in Rufus of Ephesus (circa 100 AD) the Greek name *tomeis* can be found (*De corp. hum. part. appell.* 51.), also 1st century AD in the work of the physician known as *Anonymus Londinensis* (XXIV,22), and in the Latin literature in Greek form such as by Celsus (1st century AD), who explains the origin of this name similarly to Galen later (*De med.* VIII,1). The lexicographical work by Julius Pollux (2nd century AD), a contemporary of Galen, also features other names for these teeth: according to the author the ancient Greeks named the four front teeth *tomeis* (incisors), because they cut into the food, *dichasteres* (dividers /dissectors), because they chop up the food, *ktenes* ("killers"), because they destroy everything, and *gelasinoi* ("laughers"), because they show themselves during laughing (*Onom.* II,91). It is interesting that the Greek adjective *gelasinos* was used in the past to indicate a dimple in the cheek, because this is also formed by laughing (Martial *Epigr.* VII,25).

No separate Latin term for incisors occurs in the Classical Latin literature. In Classical Latin there existed adjectives with the suffix *–ivus*, giving the sense of "action of the verb as a quality or tendency" (Moreland–Fleischer 1977, p. 209), and some of these were used in the medical terminology of

the post-Classical period. The adjective *incisivus* itself does not appear in the works of the antique authors, though adjectives with this kind of suffix became widespread in medieval times. In the 13th-century work *Areolae* by Johann de Sancto Amando we find a large number of such adjectives used for characterizing types of medicine, e.g. *medicina aperitiva, constrictiva, exsiccativa, provocativa urinae, stupefactiva*, and among them also *medicina incisiva*, meaning a "penetrative, sharp" medicine (1893, p. XXIII).

Classical Latin did not contain the word *incisor* either, and only Isidor of Seville (560 –636 AD), whose famous encyclopedia called *Etymologiae* held the sum of knowledge at the boundary between Antiquity and the Middle Ages, has the variant *praecisores* (XI,52), although this too occurs infrequently in the history of medical terminology. This term appears again in the little-known medieval list of names of body parts called *De membris humanis*, dating from the 10th – 11th century (Fischer 1996, p. 345). *Incisores* is the term which reappears in the early Middle Ages, in particular in the better-known manuscript of the Lorscher Arzneibuch from the 8th century (1992, p. 66). Albertus Magnus (circa 1200 - 1280) also uses this name for the front cutting teeth, whereas the second in line are *quadrupli* from Lat. *quadruplus* = four times as much (1916, p. 70). In a German dictionary of medieval Latin, the substantive *incisor* also means surgeon, healer (Diefenbach 1867, p. 217).

The Lorscher Arzneibuch, the 8th-century German book of medicine, contains together with *incisores* also the variant *divisores*, i. e. dividers (1992. p. 66), which can be found again later in the pseudo-Hippocratic work *De praeparatione hominis ad regem Ptolemaeum*, translated into Latin by the German humanist Johann Reuchlin (1455-1522) (1512, s. p.). In his later study of anatomy, Leonhard Fuchs (1501 – 1566) has yet another variant, *concisores* (1551, p. 66).

The term (*dentes*) *incisivi* is found in medieval literature such as the *Anatomia* of Mondino de Liuzzi (1270 –1326), published in printed form much later in the 15th century, but this term is used here to denote the secondary front teeth, because Mondino calls the primary front teeth *duales* from Lat. *duo* = two (1482, s. p.). According to Hyrtl this name is a translation from Arabic (1879, p. 185). Another variant meaning the front cutting teeth was the term *dentes incisorii*, occurring in the Latin commentary to the Hippocratic Aphorisms of Archimatheus Salernitanus from the later 12th century (2005, p. 65).

Other terms can be found in Latin translations of Aristotle's word *prosthioi* in his work *De partibus animalium* by two medieval scholars, the translation by Michael Scot (1175 – circa 1232) calling the cutting teeth *anteriores* (1998, p. 92), while that by Theodor Gaza (1410 – 1475) has them as *primores* (1505, s. p.). In the Latin translation of Avicenna's Canon of Medicine by Gerard of Cremona (1114 – 1187), the upper and lower front cutting teeth are called *duales* and the second ones are called *quadrupli* (I, fen 1, doctr. 6, cap. 5.), which Hyrtl claims is also a translation from Arabic (1779, p. 185).

In the literature of the early modern age, Berengario da Carpi (1460 – 1530) also lists some names used by his precursors, i.e. *duales, incisivi, quadrupli* (1520, p. 42-43). In contrast, the adjective *incisivus* does not occur in Ludovicus Caelius' (1469 – 1525) work *Lectiones antiquae*, which repeats the four names from Julius Pollux, adding the variant *temnici* (1517, p. 77), while Franciscus Dryander (1518 –1552) has the similar expression (*dentes*) *incidentes* (1537, fIIIb).

The founder of modern anatomy, Andreas Vesalius (1514 – 1564), in the first edition of his epoch-making work *De corporis humani fabrica*, gives an account of all the previously mentioned names, and adds some new ones as well: (*dentes*) *anteriores, incisorii, tomeis, dichasteres, ktenes, gelasinoi, risorii* (= laughers), *quaterii* (lat. *quater* four times), sometimes specifically calling the middle front teeth *duales*, although in another place in the same edition he shortens the list and uses just one name: (*dentes*) *incisorii* (1543, p. 45, 167). In the second edition he repeats all the names, adding only in the case of *duales* that it is a "barbaric" name, thus indicating expressions from medieval Latin, while in another place in the second edition he again uses the sole expression (*dentes*) *incisorii* (1555, p. 58, 207).

Authors following on from Vesalius had differing usages, some of them initially listing all the different names for these teeth, e.g. Caspar Bauhin (1560 – 1624) *incisorii, tomeis, tomikoi, gelasinoi* (1605, p. 924.), Thomas Bartholin (1616 – 1680) *primores, anteriores, incisores, incisorii, gelasinoi* (1684, p. 731) although in some rare cases they restricted themselves to just one name, e.g. Fallopia, who has only *incisorii* (1562, p. 30v).

In comparison with the other tooth names, the front cutting teeth have probably the greatest range of names in history, but nevertheless just one name gradually takes priority. Samuel Th. Soemmerring (1755 – 1830) for instance prefers *incisores*, but in brackets he still includes the others: *tomici, primores, risorii, adversi, acuti* (1794, p. 182). This goes on until the repertoire is narrowed to two variants, the terms *incisores* or *dentes incisivi*, so that Johann

F. Meckel (1781 – 1833) has just *dentes incisivi* (1822, Tab. XVII), while John and Charles Bell (1763 – 1820, 1774 – 1842) have *incisores* (1827, p. 141). The Basiliensia Nomina Anatomica, BNA, the first standardized anatomical taxonomy, approved in 1895, finally gives the variant *dentes incisivi* priority over the substantive *incisores* (1895, p. 53) evidently for systematic reasons, since all the other names here are also combinations of nouns and adjectives, with the result that this variant still appears in every official anatomical nomenclature to this day (Terminologia anatomica 1998, p. 48).

Dens caninus

The term *dentes canini* (Lat. *canis* dog, *caninus* doggish) is a calque of the Greek expression *kynodontes* (Gr. dog teeth). Galen writes that these teeth are called thus because they are very similar to the teeth of a dog (*De oss. ad tir.* II,754 K.), Julius Pollux later describes the similarity more closely, namely that they are as sharp as a dog's teeth (*Onom.* II, 91), while Isidor of Seville at the end of the Classical period even adds their function as a motive for their naming, because dogs use them to crack bones just like humans (*Etym.* XI,52). No other name for these teeth is to be found in the Greek medical literature. Although Hyrtl maintains that it was Aristotle who first used this term in his *De partibus animalium* (1880, p. 176) the name in fact appears earlier in the Hippocratic Aphorisms (III,25).

In the Classical Latin literature, *dentes canini* occur in Celsus (*De med.* VIII 1,9) and Pliny the Elder (23/24 – 79 AD), though the latter ascribes them to animal anatomy (*Nat. hist.* XI,160,166). Apart from this there was also the name (*dentes*) *columellares* (Lat. *columella* small column), or columnar teeth, which can be found in Varro (116 – 27 AD) (*Res rust.* II,7,2) and in Pliny (*Nat. hist.* XI,68). Connected with this is the term *colomelli*, which Isidor of Seville uses in his human anatomy as a "popular term" for the cutting teeth, because they are long and round like little pillars (*Etym.* XI,52).

The term *dentes canini* was also used in the Middle Ages, for example in the Lorscher Arzneibuch (1992, p. 66), in the medieval taxonomy of parts of the human body *De membris humanis* (Fischer 1996, p. 345), in Mondino (1482, s.p.), in the Latin commentary on the Hippocratic Aphorisms by Archimatheus Salernitanus (2005, p. 65), in the Latin translation of Avicenna's Canon of Medicine by Gerard of Cremona (1479, p. 467), and similarly in the Latin translations of Aristotle's work *De partibus animalium* by Michael Scot (1998, p. 92) and Theodor Gaza (1505, s. p.).

In pre-Vesalian anatomy the name *canini* is also predominant, occurring in Ludovicus Caelius (1517, p. 77) and Berengario da Carpi, although the latter has it that they are also called *gelasini* by some, because they are revealed during laughing (1520, p. 43), whereas the majority use this word to denote the incisors. Vesalius, as in the case of the incisors, has several names in one place in the first edition: *canini, mordentes* (Lat. *mordere* to wound with the teeth), *risorii* from Lat. *risus* laugh, thus it is the Latin equivalent for *gelasini* (1543, p. 167), but then just one, *canini*, in another place (1543, p. 45), and the same occurs again in the second edition (1555, p. 57).

The French humanist Robert Estienne (1503 - 1559) was the first to use a new expression, namely *dentes ocularii*, eye teeth, explaining that they were "popularly" called this way due to the risk of damaging part of the eye in their extraction (1545, p. 22). Celsus himself had warned that there existed a danger that the eyes may be concussed during extraction of an upper tooth (*De med.* VII,12,1B). In some places this variant was used specially just for the upper eye teeth. Another variant, *dentes oculares*, is found in Adrian van den Spiegel (1578 – 1625) (1632, p. 47), André du Laurens (1558 – 1609) (1602, p. 151) and Bartholin (1684, p. 732), whereby the latter two also add an explanation for this name, which is that part of the oculomotor nerve leads to them. Giulio Cesare Casseri (1552 – 1616) even uses the Greek variant of this term: *ophthalmikoi* from Gr. *ophthalmos* eye (1627, s. p.).

Other names were used more rarely, but the term *dens angularis*, "corner" tooth, originated in the Middle Ages, apparently because of the apex of its form or being placed at the angle of the mouth. This appears in the medieval preliminary book of law called *Lex Frisionum*, Law of the Frisians, from the 8th century, which lays down punishments for bodily harm, literally saying: Who kicks aut one of the angular (= canine) teeth, he pays three shillings (1982, p. 68). John Hunter (1728 – 1793) later introduces the term *dentes cuspidati* (Lat. *cuspis* sharp point, tip) to distinguish these teeth from the premolars, which he then called *dentes bicuspidati* (1771, p. 47). This term can also be found in Soemmerring, who moreover uses yet another name apart from *canini* and *cuspidati*, which is *laniarii* (Lat. *laniare* to cut up like a butcher, from Classical Latin *laniarius* meaning a butcher) (1794, p. 183).

Before John Hunter the term *dentes canini* was historically clearly dominant, and *canini* alone is used for example in 1560 by Jacques Dubois (1478 – 1555) (1560, p. 11r), and in 1753 by Jacques-Bénigne Winslow (1669 – 1760) (1753, p. 98), but after Hunter the pair of names *cuspidati* and *canini* becomes most

frequent, for example in the Bells' work of 1827 (p. 142), or in Richard Quain (1800 – 1887) in 1837 (p. 408), while the other names gradually stopped being used. Ultimately *canini* gained priority over *cuspidati* in the BNA, probably due to its greater tradition, and this term is found in the official anatomical nomenclature to this day (Terminologia anatomica 1998, p. 48).

Hyrtl's reservations concerning the name *dens caninus* sound quite curious in the present day. Hyrtl was generally excessively critical from today's point of view in his judgements on anatomical names, and in his view this one is absurd. He presents a situation in which a dentist informs a lady that he intends to pull out one of her dog teeth (1880, p. 176), but this is a piece of sophistry. It is a wonderful advantage of terminology that by agreed convention a term may be understood for its conceptual content, regardless of the meaning of the word in the original language, so the lady would know very well which tooth the dentist was talking about, and not take offence thinking he was indirectly calling her a dog.

Dens praemolaris

The "cheek teeth" (premolars and molars) were not differentiated in dental anatomy until long into the modern age, and the first to divide the teeth into four groups was John Hunter. It should be mentioned, however, that some hints of differentiation of these teeth had existed before his work. Mondino de Liuzzi at the turn of the 13th to 14th century classifies the teeth in one jaw as follows: two *duales*, two *incisivi*, two *canini*, four *maxillares* and six *molares* (482, s. p.), i.e. the *maxillares* could be understood as the premolars. In his Traité d´Osteologie in 1754 Bertin differentiated between the first two minor molars, *petites molaires*, and major molars, *grosses molaires* (1754, p. 244). When J. Hunter wrote his work *The Natural History of the Human Teeth* in 1771, he introduced a new group of teeth and called them *bicuspides*, because they have two points (Lat. *cuspis* = point, spike), in contrast to the eye teeth, *cuspidati,* which have just one (p. 47). He also used the variant *dentes bicuspidati* as an equivalent expression. This term gradually caught on, though there were also objections to it. Alexander Monro (1697 – 1767), an Edinburgh professor, criticized it because in his opinion these teeth have three or more points (cit. in Jackson 1778, p. 14).

Later, however, another name emerged for this kind of tooth, *dens praemolaris*, the term which is still used today, created in the way which is now common in modern anatomical terminology, using the prefix *prae-* = pre and

the adjective *molaris* = grinding (*dens molaris* = molar tooth), thus meaning literally a tooth in front of the grinders. This term was originally used in comparative anatomy: the 1840 work named *Odontography* for example states that "the (teeth) in the lower jaw are called premolars, or false molars and in human anatomy bicuspides" (Owen 1840, p. 298). *Encyclopaedia Britannica* in 1858 has an entry on mammal teeth which reads: "The 'bicuspids' in human anatomy, and the corresponding teeth called 'premolars' in the lower mammals .... " (p. 439). In 1861 the journal Dental Review published Hunter's epochal work once again in instalments, and an editor's note states that the premolars are called bicuspides in human anatomy (p. 531).

Neither Hyrtl (1880, p. 177) nor Marcovecchio (1993, p. 260-261) concern themselves with the origin of this term, while Goyanes erroneously claims that it was introduced by Soemmerring in 1794 (1980, p. 177), whereas he in fact uses Hunter's term *bicuspides*. We do not know the author who first used this name in human anatomy, but we are able to follow its subsequent spread and once again the kind of discussion it set off. The *Oxford English Dictionary* documents the first use of the term premolar in 1842 (1961, p. 1282). The fourth edition of Quain's famous Anatomy dated 1837 does not yet mention the term premolar (p. 185), but the fifth edition in 1848 does (p. 408). On 6th May 1867 the Odontological Society of Great Britain held a session at which Mr. Bridgman gave a lecture on the topic of *The Elements of Dental Nomenclature*. In this he declared that "to call a bicuspid as premolar was a misnomer" and for this reason he "had proposed to retain the name bicuspid, as being preferable to premolar." In the following discussion, however, not all of his audience concurred with him. The session chairman defended the term premolar as having "reference to situation, and not anatomical characters" (Odontological Society, 1867, p. 221-227). Two years later J. T. Codman in the same journal writes about teeth which have various names, including among them that of premolar. Codman maintains that "we know not where all these names came from, or who first named the human teeth." Surprisingly, he further claims that "bicuspid indicates the form, but premolar or fore-grinder, the old name" (1869, p. 342-343). The designation "old name" evidently refers to just one part of the term, namely molar. Here we should also mention Green Vardiman Black (1826 – 1915), who was the main author of the modern dental nomenclature presented in 1893 at a dental congress in Chicago. While his report on the activity of the committee for dental nomenclature does not concern itself specifically with the names of

particular groups of teeth, it does in fact feature the name premolar (1849, p. 877-887).

In the 19th century there existed yet another terminological approach to naming the premolars, which emphasized their relation to the molars. The premolars were designated as "small molars" and the molars themselves as "great". Thus Tweedie has "small molars or bicuspides and great molars or multicuspides" (1841, p. 241).

Ultimately the term *dentes praemolares* gained precedence over the name biscupides within the BNA, because bicuspides was not an appropriate term for all the teeth in this group, and moreover the former ensured correspondence with comparative anatomy (Denton, 1958, p. 197) and still has a firm place today in the official anatomical nomenclature (Terminologia anatomica 1988, p. 48).

Dens molaris

From the point of view of time the first term to appear for this group of teeth in ancient Greek literature was *gomphioi* (Gr. *gomphos* = bolt). This is used by the Ionian authors in Attica (Moeris 1759, p. 111), by Aristophanes (445-388 BC) in his play The Frogs (*Ranae* 580), and in the 5th book of Hippocratic Epidemics (V,258 L.), which probably dates from the period before 360 BC (Deichgräber 1970, p. 146), and lastly Galen in the work *De ossibus ad tirones* (II,737 K.). In his commentary on this Galen's work, Jacques Dubois translates this term as *dentes clavales*, i. e. rivet teeth (1556, p. 31). One of the derivations of *gomphos* is the word *gomphosis*, a kind of joint, as of a tooth (Chantraine 1968, p. 232). This term can also be found in Galen (*De oss. ad tir.* II,737 K.), and remains part of the official anatomical terminology.

The term *mylai* ("mills") is of later origin, and is documented in Rufus of Ephesus (*De corp. hum. part. appell.* 51) and in *Anonymus Londinensis* (XXIV,24). Galen writes that the molars are not only called *gomphioi*, but also *mylai*, and that "they get this name by metaphor, for with them we grind triturate cereals as do mills" (*De oss. ad tir.* II,754 K.). The Greek literature also mentions the variant *militai*, occurring for example in the pseudogalenesque work "*Introductio seu medicus*" (XIV,722 K.).

In the ancient Latin literature we find three names for the molars. The first is a calque of the Greek term *mylai*, *dentes molares*, appearing in the work named *Compositiones* by Scribonius Largus dated 44-48 AD (61). In contrast

to the incisors and the eye teeth, however, which in Latin are known only by calques from Greek, for the molar group of teeth Latin in fact formed a term with its own motivation. This was the expression (*dentes*) *maxillares,* or jaw teeth, which can be found in Celsus (*De med.* VIII,1,9) and later in Pliny (*Nat. hist.* XI,166). The similar motivation is used in the third term, *dentes genuini* (from Latin *gena* = cheek), which appears even earlier, namely in Cicero (106 – 43 BC) (*De nat. deorum* II,134). This name was later restricted to the wisdom teeth. Another term with similar motivation is *dentes buccales*, denoting either minor molars (Lészai 1830, p. 8), or premolars and molars as opposite to the incisors and canines (White – Black – Folkens 2012, p. 101). The adjective *buccalis* is derived from the Latin *bucca* (= lower part of the cheek), but does not occur in the Classical literature, being probably a back-formation based on the German name Backenzähne, from the medieval German bakzan, which is documented in the 12th C (Digitales Wörterbuch). There may be a Latin precursor of the term *dentes buccales* if we accept Bartholini's observation that the German people call the molars *dentes buccarum* (1684, p. 732).

During the Middle Ages the name (*dentes*) *molares* occurs more frequently than *maxillare*s, found for example in the Latin commentary to Hippocrates' Aphorisms by Archimatheos Salernitanus (2005, p. 65). It is also known to Albertus Magnus (1916, p. 70), and we can find it in the Latin translation of Avicenna's Canon of Medicine by Gerard of Cremona (1486, s. p.). Two medieval scholars on the other hand translated the term *gomphioi* from Aristotle's work *De partibus animalium* in different ways, Michael Scot as *molares* (1992, p. 92), and Theodor Gaza as *maxillares* (1998, s. p.). Mondino de Luzzi, as already mentioned, differentiates between *molares* and *maxillares*: *maxillares* indicates the premolars, *molares* the back teeth (1482, s. p.). In the literature of the early modern age, Berengario da Carpi and Caelius both use the term *molares* (1520, p. 43; 1517, p. 77).

In addition to the above, the humanistic literature also features the name *dentes paxillares* (from the Latin *paxillus* = wooden nail or peg), which may therefore be considered as a calque of the Greek term *gomphioi*. This form of the name appears for instance in the Latin translation of Pollux's *Onomasticon* (1541, p. 94) or in Estienne's *Dictionarium* (1564, p. 531).

The first edition of A. Vesalius' anatomy uses a similar approach as in the case of the incisors and canines, presenting a large number of names in one place: *molares, maxillares, paxillares, gomphoi, myletai* (the correct form in

Classical Greek was *mylitai*), although in another place he then uses just two terms, *maxillares* and *molares* (1543, p. 45, 167; 1555, p. 57).

Some authors of post-Vesalian anatomical works initially used several names from Latin and Greek, for example *molares, mylai, mylitai, myloi* in Bauhin (1605, p. 929). Later authors however use just one name, *molares*, e.g. Dubois (1560, p. 11r), and Bartholin (1684, p. 732), and this term gradually becomes the prevalent one, as in Bells (1827, p. 142).

Even so, attempts were still being made to introduce other terms. By analogy with the adjective *cuspidati* for the eye teeth and *bicuspidati* for the premolars, in the modern age the term *dentes multicuspidati* also appeared, for example in Henry Gray's Anatomy (1858, p. 585). This name however would only have had a chance of prevailing if the other terms *cuspidati* and *bicuspidati* had become established, and that would only have been for systematic reasons. Since that did not happen, the term *multicuspidati* was not generally accepted either.

Another possibility was the already-mentioned designation of the premolars as *molares minores* and the molars as *molares majores*. C. Eckhard for example speaks of the false molars, *dentes molares minores*, and the true molars, *dentes molares majores* (1862, p. 160). This approach spread mainly in the English medical literature of the 19th century, using small / large molars as synonyms for the bicuspids / multicuspids, e.g. Richardson (1854, p. 215). The final attempt appearing in the 20th century was the term *dentes postmolares* for the molars, distinguishing them from the premolars (Rötzscher 2000, p. 87). This term appeared only rarely, however, and it did not enjoy great success in acceptance. From the linguistic point of view, namely, the terms premolar and postmolar cannot be understood as front and rear molars, but as something in front of or behind the molars themselves, thus producing an illogical situation in which premolar and postmolar teeth exist, but the molars themselves are missing.

Apart from the three names for the molars, in the Greek literature there is also the idea expressed by Rufus of Ephesus, according to which the flat part of the molars is called *trapeza*, i. e. table (*De corp. hum. part. appell.* 54). Derived from this there was an infrequently-used Latin name *dentes mensales* ("table teeth"), which appears in Casseri (1627, s. p.).

Despite all these various attempts at introducing other terms, the one which ultimately made its way into the BNA, was the traditional one, *dentes molares,* and this has persisted in the terminology to this day.

Dens serotinus

In the ancient Greek medical literature three names were used for these teeth. In the Hippocratic corpus we find the name *sóphronistér* (*De carne* VIII,602 L.), which is derived from the verb *sóphronizein*, to induce circumspection or teach someone a lesson, so the substantive originally meant "someone who edifies, chastises" (Liddell – Scott, 1996, p. 1751). Rufus of Ephesus explains the motivation behind the term as follows: "[these teeth] grow at a time when we begin *sóphronein*" (*De corp. hum. part. appell.* 51), which is a verb with several similar meanings: to be of sound mind, circumspect, temperate. *Sóphronistér* is also a person who is notable for the quality of *sóphrosyné*, common sense, moderation (Liddell – Scott, 1996, p. 1751), known for being prized in antique philosophy. The modern-age author B. Eustachi (1500 or 1514 – 1574) explains the origin of the name for these teeth in the sense that they grow at a time of life when people are supposed to be moderate (Lat. *moderati*), restrained and temperate, Lat. *temperati* (1563, p. 24). J. Riolan Jr. (1577 – 1657) in turn explains with reference to Rufus of Ephesus that these teeth emerge at a time when a person is expected to be moderate (Lat. *moderatus*) and temperate (Lat. *temperatus*), in other words at a time when they start becoming wise (1626, p. 823).

The classical Latin literature does not contain anything equivalent to this term. Wisdom, Lat. *sapientia*, appears in a Latin calque of a Greek expression, *dens sapientiae*, only much later, for example in the 16th century translation of the Hippocratic corpus by J. Cornarius (1558, p. 73). Not all authors used the word *sapientia*, however, and the Latin translation of the same work in the Hippocratic corpus by another humanist, F. Calva, has *dentes prudentiae* (1515, p. 595), and the medical dictionary by H. Estienne has *moderatores* (1564, p. 531), i.e. those which control or rule. The Latin translation of Avicenna's Canon of Medicine by Gerard of Cremona features the translation of an Arabic term as *dens sensus* (I, fen 1, doctr. 6, cap. 5.), i.e. tooth of understanding, Lat. *consensus*, and Albertus Magnus calls them *dentes stantium sensuum* (1916, p. 70), i.e. teeth of steadfast understanding, while Berengario da Carpi offers several names: *dentes intellectus, sensus*, *sapientiae* (1520, p. 42v), i.e. teeth of intellect, understanding, wisdom, and a year later adds another synonym: *dentes consistentiae* (1521, p. CCCLXXIIIIr), i.e. teeth of composure, harmony. A. Vesalius has *dentes sensus ac sapientiae* (1543, p. 167), i.e. teeth of understanding and wisdom.

J. Riolan made a witty observation, reported by J. Hyrtl, suggesting with a touch of irony that in contrast to the *dentes sapientiae,* the other teeth should be called *dentes stultitiae,* meaning "stupidity teeth".[1]

The second Greek term, *krantér*, is found in the work of Aristotle named *Historia animalium* (501a-b), and means "someone who completes" (Liddell – Scott 1996, p. 990), thus indicating the teeth which complete the dental rows. In German translation there appears the equivalent Vollender, finalizer, for this name (2013, p. 44). No later authors ever attempted to replace this Greek name with a Latin calque, although there is a link with the dental term "diacranteric", meaning "with a diastema (gap, interval) between the front and the back teeth, for example such as snakes have" (Henderson – Henderson 1920, p. 73).

The third term, used by Julius Pollux, is (*odús*) *opsigonos*, that is (a tooth) which is born later (*Onom.* II,91).This was the origin of the currently-used name for the final molars, *dens serotinus*. The Latin adjective *serotinus* means "late-ish", arriving rather late, so in this context it indicates a late-appearing tooth. Although this adjective really belongs in Classical Latin, the term itself is from the modern age. We may consider as its precursor the statement made by Celsus, who remarked that the final teeth usually appear late, Lat. *sero* (*De med.* VIII,1,9). It can be found in Latin form in the first Latin translation of Pollux' *Onomasticon* (1541, p. 94), and later it also appears in the anatomical work of A. Monro Sr. (1697 – 1767) (1758, p. 156.). Another name with the same motivation but a different synonym is *dens tardus*, i.e. tardy tooth, which is used by J. B. Winslow (1753, p. 101), although he points out elsewhere that it is also called *dens sapientiae*. A similar term is *dens tardivus*, which appears in S. Th. Soemmerring as a term synonymous with *dens sapientiae* (1794, p. 186).

The term *dentes genuini* (from Lat. *gena* = cheek) used to be applied to the molars, appearing for instance in Cicero (*De nat. deorum* 2,134), but Pliny Sr. considers it as indicating the wisdom teeth, because he writes that *novissimi (dentes) qui genuini vocantur, circiter vicensimum annum gignuntur* (*Nat. hist.* XI,166), i. e. the last teeth which are known as cheek teeth, come about the twentieth year. Some modern-age authors also considered this term as a name for the wisdom teeth, for example R. Colombo (1562, p. 65).

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1 Hyrtl mentions this in two works (1879, p. 187; 1880, p. 177), but he never mentions where exactly it appears in Riolan's oeuvre. I have searched for this remark in several of his anatomical works (1608, 1626, 1628-1629, 1649, 1658) but in spite of all my efforts I did not succeed in finding the place either.

The terms *dens sapientiae* and *dens serotinus* have been used most frequently and for a long time in parallel in the history of anatomy. J. Hyrtl, for example, uses both terms, but ultimately *dens sapientiae* occurs more frequently than *dens serotinus* (1857, p. 485). Nevertheless it was the latter term in fact which was given priority in BNA evidently due to the more realistic motivation of the term. Doctors were probably also aware of this, because while for example the second edition of Cunningham's Textbook of Anatomy dated 1905 uses the still traditional English name wisdom tooth (p. 1119), by 1918 the fifth edition has in the same place the Latin term *dens serotinus* (p. 1118). *Dens serotinus* also features in the latest, currently-used anatomical nomenclature, although this now also includes the variant *dens molaris tertius*, i.e. third molar tooth, as a synonym (Terminologia anatomica 1998, p. 48).[37]

Conclusion

To sum up, it may be said that the early authors used to apply a range of different names for the teeth, usually together in the same place, both Greek and Latin in origin. The Greek names were either transcribed or given in the Greek alphabet, but they were included only for information, either simply that the relevant teeth were so called, or more frequently for showing the motivation of the name. The Greek names did not have the status of official terms; only the Latin terms which were repeated in later texts achieved that. A good example of a user of a range of names is A. Monro, who uses one of them in each case as the official term, namely *incisor, caninus, molaris, dens sapientiae*, and mentions the other names as footnotes (1758, p. 156). But gradually the names for particular types of teeth established themselves. Before the introduction of the term pre-molar, for example, the most frequently-used names were *incisores/incisorii/incisivi, canini* and *molares*, e.g. Fallopia: *incisorii, canini, maxillares* (1562, p. 30v), and Du Laurens: *incisores, canini, molares* (1602, p. 151), until finally in the late 19th century the terms which were most frequently applied at that juncture were selected for inclusion in the BNA, and these have remained in the official anatomical nomenclature to the present day. Thus in the last hundred years or more there have been no substantial changes in the terminology, apart perhaps from two smallish exceptions, one being the simplification in spelling of the diphthong –ae to –e in the term *dens premolaris*, the other being the addition of the synonym *dens molaris tertius* to the term *dens serotinus.*

Regarding the linguistic form of the terms, the names for the incisors, canines and molars are Latin calques for the Greek ones (*tomeis – dentes incisivi*), (*kynodontes – dentes canini*) and (*mylai – dentes molares*). *Dens serotinus* has the same motivation as the Greek name (*odús*) *opsigonos*, although in this case the Latin version is not a direct calque. The term pre-molar is a modern-age one, as it has no precursor in antiquity or medieval times. Two names for the teeth are motivated by their function (*incisivus, molaris*), one by their appearance, though some say by their function as well (*caninus*), and one by their position (*praemolaris*), while *dens serotinus* stems from other circumstances, mainly the time of emergence of those teeth.

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Sažetak

Ovaj rad ima za cilj prikazati latinsko imenovanje različitih vrsti zuba pregledom relevantne povijesne i suvremene literature. U radu su prikazane etimologije za latinske ili grčke nazive zuba, njihov razvoj, varijante i sinonime, a ponekad i imena njihovih autora. Grčki nazivi nisu imali status službenih, ali latinski termini za pojedine vrste zuba postupno su se uspostavili kao takvi. Imena za sjekutiće, očnjake i kutnjaka su latinski kalkovi za one grčke (tomeis, kynodontes, mylai), dens serotinus je neizravan kalk od grčkog naziva (odús) opsigonos, a pojam pretkutnjaka je stvoren na način na koji se to uobičajilo u modernoj anatomskoj terminologiji, pomoću prefiksa prae- = prije i pridjeva molaris. Latinski izrazi dentes canini i dentes molares javljaju se u klasičnoj latinskoj literaturi, izraz (dentes) incisivi nalazimo prvi put u srednjovjekovnoj literaturi, a izraz dentes premolares i dens serotinus su izrazi modernog doba.

Ključne riječi: *anatomska nomenklatura; imena zuba; povijest.*