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»Amor – copula mundi«: renesansni traktati o ljubavi (Ficino, Petrić, Gučetić)

Možda u nijednom drugom duhovno-povijesnom razdoblju ljubav nije bila toliko često tematizirana kao u razdoblju renesanse. Renesansni tekstovi o ljubavi svakako imaju svoje tematske preteče, ponajprije u trubadurskoj, a kasnije i u petrarkističkoj poeziji, no već i iz površnog uvida u renesansne traktate, napose one nastale sredinom 15. stoljeća i kasnije, jasno je da se oni u pristupu i u koncepciji bitno razlikuju od tih svojih srednjovjekovnih prethodnika. Ono što primarno čini razliku jest uvođenje Platonova nauka o ljubavi u zapadni kulturni krug. Naime, okosnicu renesansnog tematiziranja ljubavi uspostavlja upravo ponovno oživljavanje interesa za taj nauk što ga renesansi posreduje Marsilio Ficino svojim prijevodom i komentarom Platonova dijaloga *Gozba*.

Ficino je svojim stavovima o ljubavi utjecao i na dvojicu hrvatskih renesansnih filozofa: Franu Petrića, koji ljubavi izričito posvećuje svoja djela *L'amorosa filosofia* i *Il Delfino ovvero del baccio*, te Nikolu Vitova Gučetića, koji temi ljubavi posvećuje svoj *Dialogo d'amore detto Antos*, ali o ljubavi piše i u drugom svom značajnom dijalogu *Dialogo della bellezza detto Antos*.

Petrić i Gučetić svoje traktate o ljubavi pišu gotovo stoljeće nakon Ficina i u njihovim tekstovima o ljubavi, u kojima je nesporno prisutan Ficinov utjecaj, zamjetni su novi naglasci u obradi teme ljubavi. Upravo ćemo se time baviti u ovom izlaganju. Namjera nam dakle nije izložiti iscrpnu poredbenu analizu koncepcija ljubavi trojice renesansnih filozofa,

već u osnovnim crtama naznačiti ono novo u Petrićevu i Gučetićevu pristupu filozofiji ljubavi u odnosu na Ficina. Da bi se razumjeli ti novi naglasci, zahtijeva se uvid u značajke Ficinove koncepcije ljubavi, pa su u prvom dijelu izlaganja izloženi Ficinovi stavovi na temelju analize njegova komentara Platonove *Gozbe*, dok su u drugom dijelu izložene specifičnosti utjecaja što ga je izvršio na dvojicu naših filozofa te ono novo što oni unose u filozofiju ljubavi.

Za razliku od Ficina, koji iznosi jednu ontologijski utemeljenu koncepciju ljubavi, u kojoj prorada određenih aspekata zemaljske manifestacije ljubavi logički slijedi iz temeljnog određenja ljubavi kao sveprisutnog božanskog počela, čija jedinstvenost dopušta da se poveže ono božansko i ono ljudsko, u Petrića i Gučetića izostaje takvo ontologijsko utemeljenje ljubavi (s tim da ćemo ontologijsku razradu ljubavi u Petrića naći tek u njegovu kasnijem djelu *Novoj sveopćoj filozofiji*), a naglasak se premješta na prikaz konkretnog utjelovljenja ljepote kao predmeta ljubavi u liku pojedinca, točnije ženske osobe. Pritom je iskazivanje divljenja prema tjelesnoj, moralnoj i intelektualnoj ljepoti ženskih likova na neki način ilustracija onoga što je izloženo u Ficinovu teorijskom izlaganju o ljubavi. I za Petrića i za Gučetića odredbeni su detaljistički prikazi ženske i to upravo tjelesne ljepote, premda je sve to ipak iznijeto u kontekstu platoničkog poimanja odnosa duhovnog i tjelesnog, tj. tjelesna ljepota još je uvijek sagledana primarno kao slika duhovne ljepote. S tim je u vezi i naglašena prisutnost fiziološkog tumačenja tjelesnih manifestacija ljubavnog čuvstva te astrologijsko tumačenje čovjekovih svojstava i njegova djelovanja, napose u ljubavi, u čemu se očituje prisutnost renesansnog stava o čovjeku mikrokozmosu kao slici makrokozmosa.

Na temelju uvida u značajke filozofije ljubavi u trojice renesansnih filozofa pokušava se na kraju ponešto zaključiti o ljubavi kao jednoj od

središnjih tema renesansne filozofije te o nekim značajnim tendencijama renesansnog tematiziranja ljubavi. Sva se trojica obrađenih filozofa, naime, susreću s istim načelnim problemima – prije svega s problemom usklađivanja novoplatoničke i kršćanske koncepcije ljubavi, ali onda i s još od Platona naslijeđenim otvorenim pitanjima što ih je zaoštreno postavio novoplatonizam: s pitanjem horizma Platonove filozofije i mogućnošću njegova prevladavanja te napose s pitanjem odnosa i veze ljubavi kao čuvstva i ljubavi kao sveopćeg počela, iskazanim u dilemi ljubav – demon ili ljubav – bog.

Središnju poziciju teme ljubavi u okviru renesansne filozofije treba razumijevati iz činjenice da je upravo renesansni novoplatonizam bitan segment renesansne filozofije, a ono što bitno određuje renesansni novoplatonizam jest sinkretizam koji se očituje primarno kao težnja za onim što povezuje. U skladu s tom tendencijom onda u novoplatonički koncipiranom ontologijskom sustavu ključnu poziciju ima ono ‘srednje’, ono ‘između’, što povezuje krajnosti i što zbog te povezujuće funkcije nužno mora biti dvojakog značaja. Takvu posredničku ulogu ima prije svega *ljubav.* Stoga se može zaključiti da renesansni sinkretizam kulmini-ra upravo u renesansnim traktatima o ljubavi.

Ključne riječi: renesansna filozofija, filozofija ljubavi; Marsilio Ficino, Frane Petrić/Patricius, Nikola Vitov Gučetić/Gozze

»Amor – copula mundi«: Renaissance tracts on love (Ficino, Petrić, Gučetić)

In no other historical era has the love theme been given such prominence as in the period of the Renaissance. Indeed, Renaissance texts on love had their thematic predecessors, notably in the poetry of the troubadours, and

later in the Petrarchan verse, but a fleeting glimpse into the Renaissance tracts, especially those written in the mid-fifteenth century and later, makes it clear that in terms of approach and concept they greatly differ from their medieval forerunners. At the core of this difference lies the introduction of Plato's doctrine on love into the Western cultural circle. Namely, the popularity of the Renaissance thematisation of love should be sought in the revival of the interest in Plato's doctrine, rediscovered through the translation of Marsilio Ficino and his commentary on Plato's dialogue *Symposium*.

With his views of love, Ficino also influenced two Croatian philosophers of the Renaissance: Frane Petrić, who, explicitly to love, devoted his works *L'amorosa filosofia* and *Il Delfino ovvero del baccio*, and Nikola Vitov Gučetić, whose *Dialogo d'amore detto Antos* is devoted to the love theme, the latter also being discussed in his *Dialogo della bellezza detto Antos*.

Petrić and Gučetić wrote their tracts on love almost a century after Ficino, and their texts on love, in which Ficino's influence is undisputed, bring novel accents in the treatment of the love theme, which will be the focus of this paper. Our aim is not to present a thorough comparative analysis of the love concepts of the three Renaissance philosophers, but to outline the novel elements in Petrić's and Gučetić's approach to the philosophy of love in relation to Ficino. In order to understand these new accents, it is necessary to provide an insight into the features of Ficino's concept of love. Therefore the first part of the paper deals with Ficino's views as interpreted on the basis of his commentary on Plato's *Symposium,* while the second discusses the specific characteristics of Ficino's influence on the two Croatian philosophers, as well as the novelty that they introduce into the philosophy of love.

Unlike Ficino, who comes forward with an ontological foundation of the concept of love, in which the elaboration of some aspects of the worldly manifestation of love logically follows from the fundamental determination of love as an omnipresent divine principle, whose oneness allows the divine and the human to unite, Petrić and Gučetić fail to follow the ontological foundation of love (with Petrić, however, this concept will appear in his mature work *Nova de universis philosophia*), the accent being shifted towards the presentation of the concrete embodiment of beauty as love object in the form of an individual, more precisely, of a female person. In doing so, the expression of admiration for the physical, moral and intellectual beauty of the female characters is in a specific kind of way an illustration of what is expounded in Ficino's treatise on love. Characteristic of both Petrić's and Gučetić's approach are the most detailed descriptions of female physical beauty, though still within the frame of the Platonic understanding of the relationship between the spiritual and the physical—that is, physical beauty being primarily viewed as an image of spiritual beauty. Coupled with this topic is also an accentuated presence of the physiological interpretation of the physical manifestations of the love emotions, as well as astrological interpretation of man's characteristics and his activities, predominantly in love, reflecting the Renaissance view of man the microcosm as an image of the macrocosm.

It may be concluded that all the three philosophers encounter the same problems of principle nature—first of all, the problem of harmonisation of Neoplatonic with the Christian concept of love, but also with some of the open issues since Plato's day, abruptly posed by Neoplatonism: with the question of the ὁρισμός of Plato's philosophy and the possibility of its being overcome, and especially with the question

of the relationship between love as emotion and love as universal principle, expressed in the dilemma love – demon or love – God.

Central position of the love theme within Renaissance philosophy should be understood from the fact that the Renaissance Neoplatonism was an important segment of the Renaissance philosophy, and what essentially determines the Renaissance Neoplatonism is the syncretism which is witnessed mainly as a tendency towards that which unites. In accordance with this tendency, then the key position in the Neoplatonically conceived ontological system is awarded to the 'middle,' to the 'in-between,' that unites the extremes and which, because of this uniting function, necessarily has to be of dual meaning. Such a mediating role is primarily bestowed on *love.* Thus it may rightly be concluded that it was in the Renaissance tracts on love that the Renaissance syncretism reached its culmination.

Key words: Renaissance philosophy, philosophy of love; Marsilio Ficino, Frane Petrić/Patricius, Nikola Vitov Gučetić/Gozze

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Johann Heinrich Alsted and John Amos Comenius: Two Cases of the Reception of Franciscus Patricius in Early Modern Central Europe

The paper deals with the question of the reception of Franciscus Patricius and his philosophical work in early modern Central Europe, especially in two cases – of Jan Amos Comenius and his teacher Johann Heinrich Alsted. Based on the analysis of *Nova de universis philosophia* (1591) by Patricius and *De rerum humanarum emendatione consultatio catholica* by Comenius, I have earlier stated (Čížek 2010) that Comenius' work resembles that of Patricius in many aspects, which shows an obvious influence of the Croatian thinker.

First and foremost there is the metaphysics of light and its central concept *panaugia*, which Comenius no doubt takes over from Patricius, whereas the reception of the concept further influenced his methodology, in which light features as a fundamental principle. A clear effect of Patricius' philosophy can also be seen in Comenius' terminology. Not only that Comenius accepts a number of terms in the field of philosophy and natural philosophy, he also borrows from Patricius the Greek prefix *pan-*, which was to play an irreplaceable role in the formation and naming of various parts of his *Consultatio catholica*. Regarding the apparent similarities, it also seems possible that Patricius' metaphysical notions might have been reflected in Comenius' epistemological views. In fact, their distinctiveness (triadic and processual conception of the whole cognitive process, interaction of sensory and intellectual knowledge, the key role of light) appears to refer to the influence of Franciscus Patricius.

If we accept that Comenius was strongly influenced by Patricius, we ought to establish when exactly Comenius encountered Patricius' views. The question is the more topical considering that an indirect reference to Patricius' work can be found in Comenius' treatise *Conatuum pansophicorum dilucidatio,* written several years before he travelled to London where, according to the present opinion of the

historians of philosophy, he became familiar with the contents of *Nova de universis philosophia*.

Apparently, Johann Heinrich Alsted, Comenius' teacher in Herborn, may rightly be considered the mediator of Patricius' work. In view of the analysis of Alsted's explicit references to Franciscus Patricius as well as of the comparison of the theoretical contents of the writings of both authors, the assumed intermediary role of Alsted in the Patricius-Comenius relationship turned out to be highly improbable: Alsted's interest is focused primarily on angelological, geographical or cosmological problems, whereas Comenius primarily draws on Patricius' metaphysical and epistemological conceptions that are not represented in the works of the Herborn encyclopaedist. So the question of how Comenius encountered the philosophical views of Patricius remains to be answered.

Key words: Franciscus Patricius, Johann Heinrich Alsted, Jan Amos Comenius; the metaphysics of light, *panaugia*, triadism, encyclopaedism

Johann Heinrich Alsted and Jan Amos Komenský: Dva slučaja Petrićeve recepcije u novovjekovnoj Srednjoj Europi

Rad istražuje pitanje recepcije Frane Petrića i njegova filozofskoga djela u novovjekovnoj Srednjoj Europi, posebice u dvama slučajevima – djelima Jana Amosa Komenskoga i njegova učitelja Johanna Heinricha Alsteda. Na temelju usporedbe Petrićeve *Nove sveopće filozofije* (1591) i *De rerum humanarum emendatione consultatio catholica* Komenskoga, već sam ranije utvrdio (Čížek 2010) da djelo Komenskoga nalikuje Petrićevu u mnogim aspektima, što pokazuje očigledan utjecaj hrvatskoga mislioca.

Prvo i najprije, metafiziku svjetla i njezin središnji pojam *panaugia* Komenský nedvojbeno preuzima od Petrića, a prihvaćanje toga pojma dalje utječe ne njegovu metodologiju, u kojoj svjetlost nastupa kao temeljno počelo. Učinak Petrićeve filozofije može se uočiti i u terminologiji Komenskoga. Ne samo da Komenský prihvaća niz Petrićevih nazivaka iz filozofije i prirodne filozofije, nego on od Petrića posuđuje grčki prefiks *pan-*, koji igra nenadomjestivu ulogu u oblikovanju i imenovanju različitih djelova njegova djela *Consultatio catholica*. S obzirom na očigledne sličnosti, izgleda da su se Petrićevi metafizički pojmovi odrazili i u epistemološkim gledištima Komenskoga. Zapravo, njihova razlikovnost (trijadička i procesualna koncepcija cijeloga kognitivnog procesa, međudjelovanje osjetilne i intelektualne spoznaje, ključna uloga svjetlosti) upućuje, čini se, na Petrićev utjecaj.

Prihvati li se da je Petrić snažno utjecao na Komenskoga, treba ustanoviti kad se Komenský točno susreo s Petrićevim gledištima. Pitanje je to više aktualno razmotri li se neizravno upućivanje na Petrićevo djelo, koje se može pronaći u raspravi *Conatuum pansophicorum dilucidatio*, koju je Komenský napisao nekoliko godina prije puta u London, gdje se, prema sadašnjem stanju filozofske historiografije, upoznao sa sadržajem Petrićeve *Nove sveopće filozofije*.

Očigledno, s pravom se smije razmotriti je li Johann Heinrich Alsted, učitelj Komenskoga u Herbornu, bio posrednikom Petrićeva djela Komenskom. Analiza Alstedovih izričitih upućivanja na Petrića i usporedba teorijskih sadržaja djelā Alsteda i Komenskoga pokazala je da se pretpostavljena Alstedova posrednička uloga u odnosu Petrića i Komenskoga može odbaciti s velikom vjerpojatnošću: Alstedov interes usredotočen je prvotno na angelološke, geografske i kozmološke probleme, dok se Komenský u prvom redu oslanja na Petrićeve metafizičke i epistemološke zamisli, koje nisu zastupljene u djelima

enciklopedista iz Herborna. Stoga na pitanje o tom kako se Komenský susreo s Petrićevim filozofskim gledištima tek treba odgovoriti.

Ključne riječi: Frane Petrić, Johann Heinrich Alsted, Jan Amos Komenský; metafizika svjetla, *panaugia,* trijadizam, enciklopedizam

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Petrićevo razumijevanje Platonova περιαγωγὴ τῆς ψυχῆς (Resp. 521.c.5-8)

U četvrtoj knjizi trećega sveska *Peripatetičkih rasprava* (1581) Petrić ukazuje na Aristotelovo nerazumijevanje Platonove dijalektike. Ono proizlazi iz Aristotelova krivog shvaćanja ljudske duše i njezine djelatnosti. Njezina moć nije samo *dianoia*, ispravna upotreba razuma, već i *dijalektika*, umijeće *okretanja duše* (περιαγωγὴ τῆς ψυχῆς, *reductio animae*) k sebi i prvom bespretpostavnom počelu. Za Platona ovo *periagoge* je *istinska filozofija* (ἀληθινὴ φιλοσοφία), a možda i sva filozofija (Farandos, Wyller). Slično vrijedi i za Petrića. Naime, sažimajući svrhu svoje *Nove sveopće filozofije* (1591) u posveti papi Grguru XIV, Petrić kaže da je ta svrha u tome da nauči ljude »kojim se načinima ljudske duše vraćaju (*redeant*) Bogu Stvoritelju«.

Umijeće *okretanja* (περιαγωγὴ, *reductio*) nije puko prevrtanje, poput onog u dječjoj igri kada se glinena pločica s oznakama *dan* i *noć* okreće s jedne strane na drugu. Takvo puko prevrtanje prisutno je u prve

tri primjene dijalektike koju i Aristotel i Platon zovu *dianoia*. Pri tom misle na raspravu na osnovi već prihvaćenih mnijenja gdje je cilj nadvladati protivnika ili barem ne biti nadvladan. Obojica se njome obilato služe, ali Platon joj poznaje doseg i vidi potrebu i mogućnost nadilaženja u četvrtoj, najvišoj primjeni dijalektike. To je razgovor u kojem se lažna mnijenja uistinu prevladavaju, a duša se čisti i iscjeljuje, iz lažnog dana okreće se u onaj istinski.

Ključne riječi: Petrić, Platon, kritika Aristotela, okretanje duše, puko prevrtanje, *dianoia* i *noesis*, geometrijska i dijalektička metoda, istinska filozofija

Petrić's Understanding of Plato's περιαγωγὴ τῆς ψυχῆς (Resp. 521c.5.8)

In Volume III, Book 4 of his *Discussiones peripateticae* (1581), Petrić draws attention to Aristotle's misunderstanding of Plato's dialectics. The misunderstanding arises from Aristotle's incorrect comprehension of human soul and its actions. Soul's potential lies not only within *dianoia*, the ability of proper reasoning, but also within *dialectics*, the art of soul turning (περιαγωγὴ τῆς ψυχῆς, *reductio animae*) to itself and the first unconditioned principle. This *periagoge* is for Plato a *true philosophy* (ἀληθινὴ φιλοσοφία), and maybe even a whole philosophy (Farandos, Wyller). A similar theme takes place in Petrić. More specifically, when summarizing the aim of his *Nova de universis philosophia* (1591) in a dedication to Pope Gregory XIV, Petrić wrote that the aim was to educate people and teach them »the ways in which human souls return (*redeant*) to God the Creator«.

The art of turning (περιαγωγὴ, *reductio*) is not a mere turning-over, like the one in children's game of turning over clay plates with designations *day* and *night* from one side to another. That kind of turning-over takes place in the first three applications of dialectics, which both Aristotle and Plato call *dianoia*. By that they refer to an argument based on common knowledge, whose goal is to outwit the opponent, or at least not to be outwitted by him. Both of them use it abundantly, but Plato knows its scope and sees a need and capacity to transcend it in the fourth, the highest application of dialectics. It is a dialogue in which false beliefs are truly overcome, and the soul is being purged and healed; from a deceptive day it turns into a true one.

Key words: Petrić, Plato, critique of Aristotle, soul turning, mere turning, *dianoia* and *noesis*, geometrical and dialectical method, true philosophy

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Transliteracija grčkog rukopisa (Pseudo-)Filoponova *Komentara* Aristotelove *Metafizike*

Rad izlaže spoznaje stečene tijekom postupka transliteracije bečkoga rukopisa Cod. Phil. gr. 189, koji sadržava grčki izvornik (Pseudo-)Filoponova *Komentara* Aristotelove *Metafizike*. Iz već objavljenih kataloških podataka o tom rukopisu (Herbert Hunger, *Katalog der griechischen Handschriften der Österreichischen Nationalbibliothek 1: Codices historici, codices philosophici et philologici*, Beč 1961.), doznajemo da je

rukopis nastao polovicom 16. st. (prije 1562. godine), da je pisan na papiru dimenzija 216/218×155/157 mm. Broj redaka u rukopisu kreće se između 22 i 29. Rukopis je nepotpun. Od 213 listova nedostaju listovi 1-25. Taj je dio danas pronađen kao zaseban rukopis iz iste zbirke, Phil. gr. 156, koji sadržava tekst Platonova *Fedra*.

Na listovima 26r-125r nalazi se tekst Aristotelove *Metafizike*. Od 26r do 46v proteže se tekst 1. knjige (A). U katalo̊kom opisu navodi se da ispred f. 32 nedostaje jedan list, ali bez gubitka teksta. Zatim se navodi da ispred f. 47 nedostaje jedan list na kojem je izgubljen tekst, ali se ne daje identifikacija. Smatramo da iz oskudnih ostataka otrgnutog lista možemo identificirati izgubljeni tekst i s priličnom sigurnošću zaključiti da se radi o početku 5. knjige Aristotelove *Metafizike* (E). Od 47r do 49v nalazi se Aristotelova knjiga α' ἔλαττον, 6. knjiga (Z) počinje na 50r, 7. knjiga (H) na 71r, 8. knjiga (Θ) na 74v, 9. knjiga (I) na 80v, 10. knjiga (K) na 87v, 11. knjiga (Λ) na 98r, 12. knjiga (M) na 107r i naposljetku 13. knjiga (N) počinje na listu 118r i proteže se do 125r.

Od 125v do 129v u katalogu je identificiran Komentar Aristotelova djela *De lineis insecabilibus* Georgija Pakimera. Na listovima od 130r do 213v nalazi se Komentar na Aristotelovu *Metafiziku* Ivana Filopona naslovljen Ἐξήγησις τῶν μετὰ τὰ φυσικὰ Ἀριστοτέλους. Opis rukopisa u katalogu donosi početne i završne riječi cjelokupnog Filoponova teksta, bez navođenja na kojim se listovima nalaze počeci komentara na pojedine knjige. Nakon uvida u rukopis možemo definirati raspored (Pseudo-)Filoponovih komentara. Komentar na 1. knjigu (A) nalazimo na listovima 130r-131r. Uspoređujući grčki tekst rukopisa s tiskanim Petrićevim prijevodom vidimo da je grčki tekst te knjige djelomičan. Izostavljeni su zatim komentari na α' ἔλαττον , kao i komentari na 2. (B), 3. (Γ), 4. (Δ) i 5. knjigu (E) Aristotelove *Metafizike*.

Rukopis se na 131v-140r, dakle očito bez gubitka teksta, nastavlja (Pseudo-)Filoponovim komentarom na 6. knjigu (Z) *Metafizike*. Taj smo dio teksta (130r-140r) transliterirali u cijelosti. Na 141r nalazimo zatim (Pseudo-)Filoponov komentar na 7. knjigu (H), na 146r počinje ko mentar na 8. knjigu (Θ), na 154r na 9. knjigu (I), na 166v na 10. knjigu (K), na 174r na 11. knjigu (Λ), na 183v na 12. knjigu (M) te na 201v na 13. knjigu (N) Aristotelove *Metafizike*. Prenosimo kataloške podatke o vodenim žigovima, važnim za datiranje i lociranje rukopisa, te osnovne podatke o pisaru Matuzali Makiru (Μαθουσάλας Μαχεῖρος), iz čijeg su pera nastali i neki drugi bečki rukopisi. Pisar je u rukopisu opisao i okolnosti u kojima je pisao i dovršavao svoj rad.

Usporedbom grčkoga teksta rukopisa Cod. Phil. gr. 189 s Petrićevim prijevodom, objavljenim u djelu *Ioannis Philoponi enarratio in omnes Aristotelis libros, quos Metaphysica appellant. Eam Franciscus Patricius de Graeca, Latinam fecerat* (Ferrariae: Ex Typographia Dominici Mammarelli, 1583), utvrdili smo da je grčki tekst djelomičan. Usporedba transliteriranoga teksta iz bečkoga rukopisa s izdanjem Petrićeva latinskog prijevoda otkrila je pojedine razlike između grčkoga rukopisa i objavljenoga latinskog teksta. One su u nekim slučajevima očito posljedica pogrešno pročitanog rukopisa Petrićeva latinskog prijevoda koji je slagaru poslužio kao predložak za tiskano izdanje. U nekim drugim slučajevima te su razlike uzrokovane tradicijom grčkog teksta, to jest razlikama između ovog transliteriranog rukopisa i onog rukopisa koji je Petriću poslužio kao predložak za njegov prijevod na latinski.

Napominjemo da je transliteracija ovoga grčkog rukopisa bila izvanredno iskustvo. Danas se nažalost rijetko poseže za grčkim rukopisima i rijetko se dobiva prilika za obavljanje takvog posla. Ovaj je rukopis zbog obilja tahigrafskih znakova bio poseban izazov. Naravno da

nam je od neprocijenjive važnosti u počecima bio Petrićev tiskani latinski prijevod, koji je do kraja rada na rukopisu ostao važan čimbenik kontrole.

Ključne riječi: Cod. Phil. gr. 189, Aristotelova *Metafizika*, (Pseudo-)Filoponov Komentar *Metafizike*, pisar Matuzala Makir (Μαθουσάλας Μαχεῖρος), transliteracija, grčka minuskula 16. stoljeća.

The transliteration of the Greek manuscript of *Commentary* on Aristotle's *Metaphysics* by Pseudo-Philoponus

The paper highlights the findings discovered during the process of the transliteration of the Vienna manuscript Cod. Phil. gr. 189, which contains the Greek original of (Pseudo-)Philoponus's *Commentary* on Aristotle's *Metaphysics*. From the already published catalogue data on this manuscript (Herbert Hunger, *Katalog der griechischen Handschriften der Österreichischen Nationalbibliothek 1: Codices historici, codices philosophici et philologici,* Vienna 1961), we learn that it dates from the middle of the sixteenth century (before 1562), it was written on paper, 216/218×155/157 mm. The number of lines in the manuscript varies between 22 and 29. The manuscript is incomplete. Out of 213, the leaves 1-25 are missing. That part has also survived until the present as a separate manuscript from the same collection, Phil. gr. 156, which contains the text of Plato's *Phaedrus.*

The leaves 26r-125r contain the text of Aristotle's *Metaphysics*. The text of Book 1 (A) runs from 26r to 46v. According to the catalogue, the leaf preceding f. 32 is missing, but not the text. Further, the leaf preceding f. 47 is missing together with the text, no identification being given. We believe that on the basis of the scarce fragments of the torn out leaf we will be able identify the missing text and conclude with fair

exactitude that it is the beginning of Book 5 (E) of Aristotle's *Metaphysics*. From 47r to 49v runs Aristotle's book α' ἔλαττον, Book 6 (Z) starts on 50r, Book 7 (H) on 71r, Book 8 (Θ) on 74v, Book 9 (I) on 80v, Book 10 (K) on 87v, Book 11 (Λ) on 98r, Book 12 (M) on 107r and finally, Book 13 (N) starts on the leaf 118r and runs until 125r.

From 125v to 129v the catalogue identifies the Commentary of Aristotle's work *De lineis insecabilibus* by George Pachymeres. The leaves 130r to 213v contain the Commentary on Aristotle's *Metaphysics* by John Philoponus entitled Ἐξήγησις τῶν μετὰ τὰ φυσικὰ Ἀριστοτέλους. The catalogue description includes the introductory and closing words of Philoponus's entire text, failing to cite the leaves which contain the openings to the commentaries on the particular books. Having obtained an insight into the manuscript, we are able to define the order of (Pseudo-)Philoponus's commentaries. The commentary on Book 1 (A) has been found on the leaves 130r-131r. By comparing the Greek text of the manuscript with Petrić's printed translation, we realise that the Greek text of this book is partial. Further omitted are the commentaries on α' ἔλαττον, as well as the commentaries on Book 2 (B), 3 (Γ), 4 (Δ) and Book 5 (E) of Aristotle's *Metaphysics*.

On 131v-140r the manuscript, evidently with no text omitted, continues with (Pseudo-)Philoponus's commentary on Book 6 (Z) of the *Metaphysics*. This part of the text (130r-140r) we have transliterated in full. On 141r we find (Pseudo-)Philoponus's commentary on Book 7 (H), on 146r starts the commentary on Book 8 (Θ), on 154r on Book 9 (I), on 166v on Book 10 (K), on 174r on Book 11 (Λ), on 183v on Book 12 (M), and on 201v on Book 13 (N) of Aristotle's *Metaphysics*. We also provide the catalogue data on the watermarks, important for establishing the date and location of the manuscript, in addition to some basic information on

the scribe Matuzala Makir (Μαθουσάλας Μαχεῖρος), who is known to have penned some other Vienna manuscripts. In the manuscript the scribe also described the circumstances in which he copied and completed his work.

By comparing the Greek text of the manuscript Cod. Phil. gr. 189 with Petrić's translation, published in the work *Ioannis Philoponi enarratio in omnes Aristotelis libros, quos Metaphysica appellant. Eam Franciscus Patricius de Graeca, Latinam fecerat* (Ferrariae: Ex Typographia Dominici Mammarelli, 1583), we have established that the Greek text is partial. A comparison between the transliterated text of the Vienna manuscript and the edition of Petrić's Latin translation has revealed certain discrepancies between the Greek manuscript and the published Latin text. At some points they are evidently the result of the misreading of the manuscript of Petrić's Latin translation, which the typographer used as basis for the printed edition. At some other points these discrepancies may be ascribed to the tradition of the Greek text—that is, differences between this transliterated manuscript and the manuscript that Petrić used as basis for his translation into Latin.

It should be noted that the transliteration of this Greek manuscript has been an invaluable experience. Regrettably, today Greek manuscripts rarely come into scholarly focus and rarely may one be given a chance similar to this. The fact that this manuscript abounds in tachygraphic marks has been a challenge itself. Indeed, Petrić's printed translation in Latin has been equally invaluable throughout our work on the manuscript as an important standard of comparison.

Key words: Cod. Phil. gr. 189, Aristotle's *Metaphysics*, (Pseudo-)Philoponus's *Commentary on Metaphysics*, scribe Matuzala Makir

(Μαθουσάλας Μαχεῖρος), transliteration, Greek minuscule of the 16th century.

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Prisutnost Frane Petrića u digitalnom svijetu

Istraživanje prisutnosti hrvatskih renesansnih filozofa u digitalnom svijetu nezaobilazno obuhvaća najvažnijeg i najproučavanijeg hrvatskog renesansnog umnika – Franu Petrića. Istraživanje zahtijeva nekoliko razina. Prva razina odnosi se na pronalaženje originalnih Petrićevih djela te njihovih transkripcija i prijevoda.

Druga razina utvrđuje u koliko se ozbiljnih digitalnih izdanja od šesnaestog do dvadesetog stoljeća mogu pronaći poglavlja, natuknice i tekstovi u kojima je naš renesansni filozof obrađivan, bez obzira na kontekst u kojem se spominje.

Treća razina istražuje recentnu digitaliziranu svjetsku literaturu u kojoj se spominje Frane Petrić.

Završna razina usredotočuje se na istraživanja lika i djela Frane Petrića u Republici Hrvatskoj u posljednjih petnaestak godina, što je olakšano postojanjem Hrčka, Portala znanstvenih časopisa Republike Hrvatske. Posebnu pozornost zaslužuju digitalizirani brojevi časopisa *Prilozi za istraživanje hrvatske filozofske baštine* i *Filozofska istraživanja*. Napokon, najnovija istraživanja o creskom filozofu mogu se statistički potkrijepiti podacima iz *Hrvatske znanstvene bibliografije* CROSBI.

Ključne riječi: Frane Petrić, digitalna knjižnica, digitalna literatura; Hrvatska znanstvena bibliografija CROSBI, Hrčak

The Presence of Frane Petrić in the Digital World

The research of the presence of the Croatian Renaissance philosophers in the digital world cannot but include the most significant and most studied Croatian Renaissance thinker – Frane Petrić. The research requires several stages. The first stage should focus on the finding of Petrić's original works as well as their transcriptions and translations.

The second stage should establish the number of authoritative digital editions from the sixteenth to the twentieth century containing chapters, entries and texts which deal with Frane Petrić, regardless of the context in which he is mentioned.

The third stage researches the recent digitalised world literature in which Frane Petrić is being mentioned.

The final stage centres on the study of the life and work of Frane Petrić in the Republic of Croatia over the last fifteen years, which is facilitated by Hrčak, Portal of Scientific Journals of Croatia. Special attention should be paid to the digitalised volumes of the journals *Prilozi za istraživanje hrvatske filozofske baštine* and *Filozofska istraživanja*. Lastly, the most recent research on the philosopher of Cres may be statistically supported by the data obtained from the Croatian Scientific Bibliography CROSBI.

Key words: Frane Petrić, digital library, digital sources; Croatian Scientific Bibliography CROSBI, Portal of Scientific Journals of Croatia HRČAK

Heda Festini
Rijeka, Hrvatska /
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Petrićeva *La deca semisacra* kao moguće kodificiranje morala

Petrićev utilitarizam (H. Festini, 2003, 2004) prevaga je nad etikom vrline (Platon) preko svojih dviju komponenata – psihičke (*philautia* u *L'amorosa filosofia*, 1577) i socijalne (*con altri huomini in comune* u *Della historia diece dialoghi*, 1560) i uspostavlja jednu vrstu modela naturalizirane etike (W. A. Rottschäfer, 1998).

Petrićeva filozofija morala od učenja kroz moralno iskustvo (moralno pjesništvo u: *Della poetica, La deca semisacra,* 1588) i uvježbavanja dobrih zakona u pravednoj državi (»dobar život« u *La città felice*, 1553) ukazuje na prirodni put razvoja morala.

Ključne riječi: Frane Petrić, moralno pjesništvo, utilitarizam, naturalizirana etika

La deca semisacra di Petrić come possibile codificazione della morale

L'utilitarismo di Petrić (H. Festini, 2003, 2004) va al di là dell'etica della virtù (Platone) grazie alle sue due componenti – quella psichica (*philautia* dell'*Amorosa filosofia,* 1577) e quella sociale (*con altri huomini in comune* in *Della historia diece dialoghi,* 1560) costituendo una specie di modello di etica naturalizzata (W. A. Rottschäfer, 1998).

La filosofia della morale di Petrić, sin dall'apprendimento attraverso un'esperienza morale (la poesia moraleggiante in *Della*

poetica, *La deca semisacra,* 1588) e dalla prassi delle buone leggi nello Stato giusto (*ben essere* nella *Città felice*, 1553) implica che lo sviluppo morale segua un percorso naturale.

Parole chiave: Frane Petrić, poesia moraleggiante, utilitarismo, etica naturalizzata

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Petrić i (Pseudo-)Filopon

U seriji *Commentaria in Aristotelem graeca* ne postoji Filoponov komentar *Metafizike*. Smatra se da je izgubljen. Petrić je na latinski preveo i izdao *Komentare Metafizike* za koje se danas smatra da nisu autentično Filoponovo djelo, nego se njihov autor u literaturi naziva (Pseudo-)Filoponom. Petrić ih, međutim, smatra autentično Filoponovim.

Postoje dva rukopisa za koje se drži da su mogući predlošci za Petrićev prijevod (Pseudo-)Filoponovih *Komentara Metafizike*. Jedan se čuva u Austrijskoj nacionalnoj biblioteci u Beču, drugi u Vatikanskoj biblioteci. Niti jedan od tih rukopisa do sada nije transliteriran i objavljen, iako je već Hans Reiner napisao da će se tek nakon transliteracije tih rukopisa moći zaključiti je li Petrićev prijevod *Komentara Metafizike* Filopon ili (Pseudo-)Filopon.

Sada je u Institutu za filozofiju započeo rad na transkripciji bečkoga rukopisa. Rad je u odmakloj početnoj fazi, a tekst transliterira Antica-Nada Ćepulić.

U referatu se izlaže i tumači Petrićeva recepcija (Pseudo-)Filopona na osnovi dvaju citata iz Petrićeva prijevoda Filoponovih *Komentara Metafizike*, na temelju jednog citata Filopona iz trećeg sveska *Peripatetičkih raspr*ava Frane Petrića i jednog citata iz transliteriranog teksta bečkoga rukopisa. Ključna riječ koje se ponavlja u tim citatima je prilog »simbolički« (*symbolice*). Tom riječju (Pseudo-)Filopon izlaže da su pitagorovci na simbolički način govorili o brojevima kao počelima stvarī. U članku se pokazuje da se takav stav o pitagorovcima može naći i u djelima koja se pripisuju autentičnom Filoponu.

Ključne riječi: Petrić, (Pseudo-)Filopon, pitagorovci, simbolički

Petrić and (Pseudo-)Philoponus

Philoponus's commentary on Aristotle's *Metaphysics* is not to be found in the series *Commentaria in Aristotelem graeca,* as it is presumed to have been lost. Petrić translated into Latin and published the *Commentaries on Metaphysics,* today generally regarded not to be Philoponus's authentic work, the author of which is in literature referred to as (Pseudo-)Philoponus. Petrić, however, has no doubt about its authenticity.

There are two manuscripts which are assumed to be the basis for Petrić's translation of (Pseudo-)Philoponus's *Commentaries on Metaphysics*. One manuscript is kept in the Austrian National Library in Vienna and the other in the Vatican Library. Neither of the manuscripts has been transliterated nor published to date, despite Hans Reiner's statement that once transliterated, these manuscripts will help reveal whether Petrić's translation of the *Commentaries on Metaphysics* is Philoponus or (Pseudo-)Philoponus.

The Institute of Philosophy in Zagreb has embarked upon the transliteration of the Vienna manuscript. The work is well under way, the text being transliterated by Antica-Nada Ćepulić.

The paper examines and interprets Petrić's reception of (Pseudo-)Philoponus on the basis of two quotations from Petrić's translation of Philoponus's *Commentaries on Metaphysics*, on the basis of one quotation of Philoponus from the third volume of Petrić's *Discussiones peripateticae*, and one quotation from the transliterated text of the Vienna manuscript. The key word that repeats in these quotations is adverb "symbolically" (*symbolice*). By using this word, (Pseudo-)Philoponus expounds that the Pythagoreans in a symbolic way spoke of numbers as the principles of things. The paper shows that a similar position on Pythagoreans may also be found in the works attributed to the authentic Philoponus.

Key words: Petrić, (Pseudo-)Philoponus, Pythagoreans, symbolically

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Književnost i neznanje: funkcije lika Licide u Boškovićevim *Dijalozima o sjevernoj zori*

U pet *Dijaloga o sjevernoj zori* (*Dialogi sull'aurora boreale*), što ih je Ruđer Bošković objavio 1748. u rimskom časopisu *Giornale de' Letterati*, pojavljuju se četiri imenovana lika: dva spomenuta i dva dramska lica. U svome uvodu u *Dijaloge* Bošković međutim provodi

drukčiju kategorizaciju i ističe da je samo jedno od ta četiri »izmišljeno ime« (*un nome finto*) – Licida, s kojim razgovara Numenio, Boškovićev literarni *alter ego*.

Za razliku od ostale trojice, koji su znanstvenici i također stvarne osobe onkraj teksta, fiktivni Licida prikazan je kao pastir neuk u pitanjima novih znanstvenih teorija i postignuća. Stoga se isprva može činiti da se Licida ne uklapa posve u tako učeno društvo, no on se pokazuje ključnim za oblikovanje Boškovićeva diskurza o sjevernoj zori, i to na najmanje dva načina: on je nužna poveznica na pastoralnu književnost i upravo svojim neznanjem pruža motivaciju za razgovor. Analiza postupaka primijenjenih u Boškovićevu tekstu te njegova intertekstualnog pozicioniranja nudi također uporišta za razmatranje daljnje specijalizacije različitih vrsta diskurza – književnog i znanstvenog – koja se zbila u 18. stoljeću.

Ključne riječi: Ruđer Bošković, pastoralna književnost, funkcija lika, motivacija diskurza, intertekstualnost

Literature and Ignorance: Functions of Lycidas in the *Dialogi sull'aurora boreale* by Ruđer Bošković

Five *Dialogues on the aurora borealis* (*Dialogi sull'aurora boreale*) that Ruđer Bošković published in 1748 on the pages of the Roman *Giornale de' Letterati* involve four named characters, of which two mentioned and two *dramatis personae*. In his introduction to the *Dialogues*, Bošković follows though another type of categorization and stresses that only one of the four is "a fictional name" (*un nome finto*) – Lycidas, who converses with Bošković's literary *alter ego* Numenio.

Unlike the other three characters, who are scientists and also real persons beyond the text, the fictional Lycidas is represented as a shepherd unfamiliar with recent scientific theories and achievements. Therefore, he might seem at first somewhat misplaced in such a learned fellowship, but Lycidas proves to be crucial to the shaping of Bošković's discourse on northern lights, and in two senses at least: he is a necessary link to pastoral literature, and he motivates the conversation by his very ignorance. Analysis of procedures employed in Bošković's text, and of its intertextual positioning, also offers clues to the consideration of further specialization of different types of discourse – literary and scientific – that took place in eighteenth century.

Keywords: Ruđer Bošković, pastoral literature, character function, discourse motivation, intertextuality

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Boškovićevi motivi za priopćavanje Newtonovih otkrića u optici:
analiza šestoga pjevanja Boškovićeva epa *De Solis ac Lunae defectibus*

> Sámu istražujmo prirodu i što nam izlaže ona
> Svoje kad prolazi staze. Budni, i noću i danju,

Motrimo, nek nam se napregnu oči, ustrajni bud'mo
Kad nam je duge provoditi sate. Nije to dosta:
Vještom se služimo desnicom da bi umijećima raznim
Prirodu krotili s tisuću sprava, često joj rane
Nanijevši. Nastojmo neka kroz muku svoje oglasi
Zakone tajne i otkrije daleke uzroke stvar'ma.
(VI, 206-213, preveo Ivica Martinović)

Šesto i posljednje pjevanje Boškovićeva didaktičkog epa *O pomrčinama Sunca i Mjeseca* »pjesnička je apoteoza« Isaaca Newtona, čija djela, napose *Principia* i *Opticks*, jesu »kao neka proročišta koja daju istinite odgovore«, ističe znameniti Dubrovčanin (n. 19) i zato pjeva:

»Ti ćeš mi, Newtone, veće božanstvo biti«
(*Tu maius mihi numen eris, Newtone,* VI,10),

podrazumijeva se, veće od onih iz mitologije starih. Razlog Boškovićeva pjevanja nije samo slavljenje Newtonova djela u stihovima i proznim bilješkama, nego i podroban opis Newtonovih doprinosa optici, prije svega ključnoga eksperimenta s prizmama (nn. 49-57).

Uz to, Bošković se jasno određuje i prema Newtonovoj filozofiji znanosti i nudi svoju vlastitu kao »metodu ispravnoga filozofiranja« (*methodus recte philosophandi,* n. 28): »Priroda se istražuje motrenjima i pokusima«, pri čem se motrenja koriste u astronomiji i prirodopisu, a pokusi u eksperimentalnoj fizici i kemiji. Na tragu čuvene Newtonove izreke »Hipoteze ne izmišljam« (*Hypotheses non fingo*), i Bošković je protiv uporabe »posve proizvoljnih hipoteza« (*hypotheses penitus arbitrariae*). Za Dubrovčanina put do prave teorije u fizici nije pravocrtan napredak, nego se on zbiva »i kroz mnoge zablude« (*per errores etiam plurimos*).

Shvativši za boravka u Londonu da njegova znanstvena djela nisu doprla do Britanskoga otočja, Bošković se u bilješkama trudi upoznati britansku znanstvenu sredinu s kontinuitetom i raznovrsnošću svoga znanstvenoga rada. Posve očekivano, on više puta upućuje na svoju važnu raspravu *De lumine* (1748) (nn. 16, 28, 45), kao i na istoimenu raspravu Carla Benvenutija, koji je slijedio i provjeravao Boškovićeve zamisli (nn. 16, 46, 59). Opisuje svoje sudjelovanje na natječaju Akademije znanostī u Parizu 1752. o perturbacijama Jupitra i Saturna (n. 5). Upozorava na svoj najvažniji doprinos geofizici: oblik je Zemlje »posve nepravilan«, kako je to teorijski obrazložio u petom dijelu svoga geodetskoga izvješća *De litteraria expeditione per Pontificiam ditionem* (1755) (n. 8). Dvaput spominje i dostignuća svoje teorije silā i djelo *Philosophiae naturalis theoria* (1758) tiskano u Beču (nn. 45, 49). Štoviše, podsjeća na svoju hipotezu iz 1748. godine da lom svjetlosti ovisi o množini i rasporedu točaka koje sastavljaju česticu svjetlosti (n. 23).

Bošković se poziva i na »Notae ad iridem« (1747), svoje bilješke uz poemu svoga profesora Carla Nocetija, jer je ondje pisao o uporabi prizme u optičkim istraživanjima (n. 29). Sažeto prikazuje glavne doprinose u svojim dopunama uz ep *Philosophia recentior* Benedikta Staya: u prvom svesku (1755) izlagao je o općim svojstvima tijelā i o sili inercije, u drugom (1760) je ponudio pregled cijele astronomije (n. 28). Napokon, dopunjujući bilješke u pariškom izdanju svoga epa 1779. godine, Bošković upućuje na knjigu koja je njegov glavni doprinos usponu 'nove optike': *Dissertationes quinque ad dioptricam pertinentes* (1767) (nn. 50, 56).

Šesto pjevanje Boškovićeva epa *De Solis ac Lunae defectibus* poslužilo nam je kao građa za analizu komunikacijskih modela i postupaka kojima se o znanosti komunicira. Naš je zaključak da Boškovićeve pjesničke teme i popratna obrazloženja u znanstvenim i

povijesnim bilješkama uključuju razmišljanja o publici i obilježjima sadržaja. Osim Newtona, po kojem se Bošković na poseban način obraća londonskoj znanstvenoj sredini i Royal Society, stihovi imaju još dva važna adresata, dva protagonista 'nove optike' – Johna Dollonda i Leonharda Eulera (n. 39). Brojnim autoreferencijama Bošković znanstvenik samosvjesno predočuje svoje doprinose optici, geofizici, astronomiji i prirodnoj filozofiji.

Na razvedeni dizajn Boškovićeva komunikacijskog modela ukazuju i neki drugi momenti, primjerice spomen Algarottijevih dijaloga *Il Neutonianismo per le dame* (1737) s razmišljanjima o dostupnosti znanstvenih sadržaja različitim vrstama publike, tj. o prednostima i ograničenjima, kako bismo to današnjim rječnikom rekli, 'popularne znanosti' (n. 12). U završnoj epizodi šestoga pjevanja nudi Bošković jednu zapletenu alegoriju o Suncu, Mjesecu i Zemlji, a u bilješci (n. 78) ispisuje njezinu poruku s pomoću kontrasta: Zemlja, promotrena s Mjeseca, jest »crna, zamagljena i prljava«, a Mjesečevi su učinci nešto što je »vrlo opće i vrlo poznato« (*communissima et notissima*), koristeći se tako ključnim riječima kojima bismo i danas mogli opisati prisutnost znanosti u javnosti.

Ključne riječi: modeli komuniciranja znanosti, popularizacija znanosti, autoreferencije znanstvenika; Ruđer Bošković, Isaac Newton

Bošković's Motifs for Communicating Newton's Discoveries in Optics: Case Analysis of the Sixth Canto of Bošković's Epic *De Solis ac Lunae defectibus*

We scrutanise the nature herself and what she exhibits
While treading along her own paths. Night and day we observe

Vigilantly, attentively with both our eyes, persistent
In observation long hours we spend. Nor is that enough:
Governed by various arts our right hand masters
Thousands of instruments, taming her injured
With dense wounds. By torturing her we try to publish
Secret laws and discover remote causes of things.
(VI, 206-213, translated by Vesna Baće)

The sixth and last canto of Bošković's didactic epic *De Solis ac Lunae defectibus* is a "poetic apotheosis" of Isaac Newton, whose works, notably *Principia* and *Opticks*, are "like some kind of oracles that give true answers," the famous Ragusan states (n. 19) and hence sings:

"You, Newton, shall be my greater deity"
(*Tu maius mihi numen eris, Newtone,* VI,10),

understandably, than those from the mythology of the ancients. Underlying Bošković's epic is not merely the celebration of Newton's work in verses and notes, but also exhaustive description of Newton's contributions to optics, primarily the key experiment with the prisms (nn. 49-57).

In addition, Bošković clearly defines his views on Newton's philosophy of science and offers his own as a "method of right philosophizing" (*methodus recte philosophandi*, n. 28): "Nature is researched by observations and experiments," in which observations are applied in astronomy and natural history, and experiments in experimental physics and chemistry. Following in the footsteps of Newton and his famous dictum *Hypotheses non fingo*, Bošković too is against the application of the "entirely arbitrary hypotheses" (*hypotheses penitus arbitrariae*). He does not envisage the path to genuine theory in

physics as linear progress, but it also passes “through many errors” (*per errores etiam plurimos*).

Having acknowledged in London that his scientific works had not reached the British Isles, in the notes Bošković attempts to introduce the British scholarly milieu to the continuity and diversity of his scientific work. Quite expectedly, he recurrently refers to his important treatise *De lumine* (1748), as well as to Carlo Benvenuti’s treatise under the same title, who followed and proved Bošković’s ideas (n. 16). He describes his participation in the 1752 competition of the Académie des Sciences in Paris about the perturbations of Jupiter and Saturn (n. 5). He draws attention to his most significant contribution to geophysics: the shape of the Earth is “completely irregular,” as he expounded in the fifth part of his geodetic report *De litteraria expeditione per Pontificiam ditionem* (1755) (n. 8). He makes two references to the achievements of his theory of forces and the work *Philosophiae naturalis theoria* (1758) printed in Vienna (nn. 45, 49). Moreover, he brings to mind his hypothesis from 1748, by which the refraction of light depends on the multitude and distribution of points which compose the particle of light (n. 23).

Bošković also refers to “Notae ad iridem” (1747), his notes accompanying the poem of his professor Carlo Noceti, in which he wrote about the application of prism in optical research (n. 29). He outlines the major contributions in his *Supplementa* to the epic *Philosophia recentior* by Benedikt Stay: in the first volume (1755) he expounded on the general properties of bodies and the force of inertia, and in the second (1760) he provided a comprehensive survey of astronomy (n. 28). Finally, in his revision of the notes in the Paris edition of his epic in 1779, Bošković draws attention to the book which is his main contribution to the emergence of 'new optics': *Dissertationes quinque ad dioptricam pertinentes* (1767) (n. 50, 56).

On the basis of the sixth canto of Bošković's epic *De Solis ac Lunae defectibus* we have analysed the models of science communication and procedures by which science is communicated. We conclude that Bošković's poetic themes and the accompanying comments in the scientific and historical notes include his ideas on public and the features of the content. Apart from Newton, through whom Bošković in a specific kind of way communicates to the London scholarly milieu and the Royal Society, the verses have another two important addressees, two protagonists of the 'new optics' – John Dollond and Leonhard Euler. Thus through numerous self-references Bošković the scholar confidently presents his contributions to optics, geophysics, astronomy, and natural philosophy.

Some other elements also point to an elaborate design of Bošković's model of science communication, e.g. the mention of Algarotti's dialogues *Il Neutonianismo per le dame* (1737) with the views of the accessibility of scientific content to various types of the public, i.e., of the advantages and limitations of the 'popular science' as currently termed (n. 12). In the closing episode of the sixth canto, Bošković affords a complicated allegory of the Sun, Moon and Earth, while in a note (n. 78) he describes its message by means of contrast: The Earth, as observed from the Moon, is »black, misty and dirty« (n. 78), but the Moon's effects are "the most common and the most known" (*communissima et notissima*), using thus the key words which we today could also use if we wished to describe the presence of science in public.

Key words: models of science communication, popularization of science, self-references of the scientist; Ruđer Bošković, Isaac Newton

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Glazba i metafizika: neoplatoničke ideje o glazbi u djelu *Dialogo della bellezza* (1581) Nikole Vitova Gučetića

Jedan od najistaknutijih filozofa kasnorenesansnog Dubrovnika – Nikola Vitov Gučetić (Niccolò Vito di Gozze) – glazbom se bavio u trima svojim djelima: *Dialogo della bellezza* (1581), *Governo della famiglia* (1589) i *Dello stato delle republiche* (1591). Svoja stajališta o glazbi Gučetić je utemeljio na postavkama Platona i Aristotela, što je vidljivo iz njegova pristupa problematici glazbe, jer o njoj raspravlja s aspekta *paideie*, odnosno njezine odgojno-obrazovne uloge.

Platonov utjecaj osobito je vidljiv upravo u Gučetićevu djelu *Dialogo della bellezza*, u čijem podnaslovu on izrijekom i tvrdi kako je dijalog pisan »u Platonovu duhu«. Ovdje se Gučetić glazbom bavi s pozicija svoje mladenačke neoplatoničke metafizike, u kojoj glazba predstavlja jedan od načina na koji se duša uzdiže do ljepote. On spaja Aristotelovo poimanje glazbe kao užitka s Platonovim uzdizanjem glazbe iznad drugih znanosti te je upravo u ovom djelu najočitije koliko je Gučetić cijenio glazbu: »Čak je bolje reći da je prava ljepota ona što, privodeći nas tim trima umijećima, to jest um filozofijom, oko ljubavlju, uho glazbom, uzdiže doista našu dušu k svojem uživanju; jer nijednim drugim osjetilom do sluhom naša se duša ne može zanijeti glazbom; i samo uho ni u čemu ne uživa koliko u harmoniji glazbe. Kao što buka, što u sebi nosi strah, nagoni plašljivce u bijeg, tako sklad zvukova nagoni naše duše na užitak ljepote. Zbog toga valja vjerovati da je umijeće glazbe sišlo iz zbora blaženih anđela, jer se uz njezin zvuk naša duša

zanosi ne toliko svjetovnom koliko božanskom ljepotom; odatle Platon vjeruje da našu dušu čini stanovita harmonija brojeva; pa zato dobro reče u dijalogu zvanom *Sofist*, da naš život zahtijeva stanovito suglasje brojeva i da učenje glazbe valja pretpostaviti svim ostalim učenjima.« [Gučetić, *Dijalog o ljubavi* (Zagreb: PEN Centre, 1995), pp. 83, 85]

Osim toga, s glazbenim se odgojem, odnosno s Platonovim poimanjem *paideie*, ovdje može povezati i onaj problem koji se danas naziva 'ženskim pitanjem', jer se Gučetić zalaže za to da i ženama bude dopušteno učiti glazbu. Naime, kroz raspravu o glazbi on se osvrnuo na položaj žene u društvu.

Ključne riječi: Nikola Vitov Gučetić, Platon, Aristotel; glazba, *paideia*, harmonija brojeva; 'žensko pitanje'

Music and Metaphysics: Neoplatonic Ideas on Music in *Dialogo della bellezza* (1581) by Nikola Vitov Gučetić

One of the foremost philosophers of Late Renaissance Dubrovnik—Nikola Vitov Gučetić (Niccolò Vito di Gozze)—dealt with music in three of his works: *Dialogo della bellezza* (1581), *Governo della famiglia* (1589) and *Dello stato delle republiche* (1591). His thoughts on music were mostly founded on the assertions of Plato and Aristotle, which is evident from his approach to music problems, discussing them primarily from the standpoint of *paideia*, i.e. the music's educational role.

Plato's influence is particularly evident in Gučetić's *Dialogo della bellezza*, written "in Plato's spirit", as explicitly stated in the dialogue's subtitle. Here Gučetić discusses music from the position of his juvenile Neo-Platonic metaphysics, where music represents one of the ways by

which soul rises towards beauty. He actually combines Aristotle's understanding of music as pleasure with Plato's elevation of music above all other knowledge, and it is this particular work that best illustrates Gučetić's profound appreciation of music: "It is even better to say that true beauty is that which—by bringing us to these three skills, i.e. mind by philosophy, eye by love, and ear by music—truly elevates our soul into pleasure; because by no other sense but by hearing can our soul be captivated by music, and the ear itself enjoys in no other thing as much as in the harmony of music. As noise, bringing fear in itself, urges the fearsome to flight, so the harmony of sounds urges our souls to the pleasure of beauty. Because of this one should believe that the art of music descended from the choir of blessed angels, for by its sounding our soul is captivated not so much with worldly but more with divine beauty; hence Plato believed that our soul is made of a certain harmony of numbers; so he rightly said in his dialogue called *The Sofist* that our life demands a certain harmony of numbers and that learning music should be given priority to all other teaching." [Gučetić, *Dijalog o ljubavi* (Zagreb: PEN Centre, 1995), pp. 83, 85; translated by Stanislav Tuksar]

Another interesting issue which could also be connected with the educational role of music, i.e. with Plato's notion of *paideia*, is what we today call 'female issue', because Gučetić pleads for women to be allowed to study music. Through a discussion on music, he states his views of the position of women in the society.

Key words: Nikola Vitov Gučetić, Plato, Aristotle; music, *paideia*, harmony of numbers; 'female issue'

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Kršćanski ideal sreće u *Sretnom gradu* Frane Petrića
u kontekstu europske i hrvatske misli 16. i 17. stoljeća

Polazeći od Aristotela i antičke misli, Frane Petrić u svom djelu *Sretan grad* (1553) postavlja sreću za konačni cilj pojedinca ili zajednice. Petrić tom cilju, sreći, daje posve kršćansko obilježje u sljedećim elementima:
1. Bog je izvor jednako pojedincu kao i državi (odnosno njezinim zakonima);
2. put k sreći na zemlji vodi kroz sticanje vrlina, odnosno poštivanje zakona i savjesno obavljanje svojih dužnosti, umijeća i zanata;
3. konačni cilj se sastoji u »punini dobrote« tj. u Bogu.

Jednako koncipiran ideal sreće nalazimo u djelima europskih mislilaca, tamo sve od Dantea i Marsilija Padovanskog do Erazma Roterdamskog i Thomasa Morea. Dodirne točke s Petrićevim razumijevanjem sreće kao konačnog cilja možemo također naći u hrvatskih mislilaca i pisaca, kao što su Polikarp Severitan, Nikola Gučetić i Benedikt Rogačić. Od osobite je važnosti slična obrada ljudske sreće u Polikarpovu, Petrićevu i Rogačićevu djelu.

Ključne riječi: Frane Petrić, etika, politika, sreća; renesansa, barok, kršćanstvo

Christian Ideal of Happiness in Frane Petrić's *La città felice* Within the Context of European and Croatian Thought of the Sixteenth and Seventeenth Century

Drawing on Aristotle and ancient Greek philosophy, Frane Petrić in his work *La città felice (*1553) places happiness as the final goal of an individual or community. To this goal Petrić gives an essentially Christian meaning, distinguished in the following elements:

1. God is equally a source to both individual and the state (i.e. its laws);
2. The path to happiness on earth leads through the attainment of virtues, i.e. respect of law and responsible performance of one's duties, arts or crafts;
3. The final goal resides in the »fullness of the good«, i.e. in God.

The same concept of happiness appears in the works of the European thinkers, from as early as Dante and Marsilius of Padua to Erasmus of Rotterdam and Thomas More. Analogies with Petrić's understanding of happiness as a final goal may be found in the works of the Croatian thinkers and writers, such as Polikarp Severitan, Nikola Gučetić and Benedikt Rogačić. It is noteworthy that a similar treatment of human happiness may be observed in the works of Polikarp, Petrić and Rogačić .

Key words: Frane Petrić, ethics, politics, happiness; Renaissance, Baroque, Christianity

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Od Mjeseca do 'Mjesečarā': Putanja Ruđera Boškovića kroz engleske intelektualne klubove

Ovaj rad razmatra boravak Ruđera Boškovića u Engleskoj i njegove dodire s Englezima kroz prizmu tipično engleskog fenomena 'klubovanja' u 18. stoljeću. Boškovićev dolazak u London 1760. godine obilježen je objavljivanjem epa *De Solis ac Lunae defectibus* koji je Dubrovčanin posvetio Kraljevskom društvu čiji je kasnije postao član. A godinama nakon odlaska iz Engleske Bošković je bio u dodiru s engleskim poznanicima, kao naprimjer s Josephom Priestleyem iz »Društva Mjesečarā« u Birminghamu (J. Uglow 2002). Radi se o društvu koje su sačinjavali filozofi, znanstvenici, industrijalci i intelektualci (J. Watt, J. Roebuck), i čija je djelatnost započela nešto prije Boškovićeva dolaska u Englesku.

Boškovićev ep o pomrčinama Sunca i Mjeseca i »Mjesečari« čine okvir unutar kojeg je moguće sastaviti neku vrstu 'mape klubovanja' Boškovićevih engleskih znanaca: ti klubovi, društva i kružoci imali su veću praktičnu važnost u odnosu na službena znanstvena društva koja su donosila prestiž (R. E. Schofield 1957). Pripadanje jednom društvu, klubu ili kružoku nije isključivalo pripadanje drugom, te je dolazilo do plodonosnih križanja mišljenja i stavova (K. Olsen 1999; P. Clark 2000). Tako je, primjerice, Samuel Johnson imao svoj kružok, ali je istovremeno bio u dodiru s predstavnicima škotskog prosvjetiteljstva koji su imali svoje sasvim osobite stavove o duhu doba prosvjetiteljstva (M. Goldie 1991; A. Broadie 2002).

U okviru grupnih biografija engleskih društava prosvjetitelja pretpostavlja se ovom prigodom da su neki od nesporazuma između Boškovića i članova tih društava (npr. Josepha Priestleya) mogli nastati kao posljedica različitog razumijevanja značajnog prosvjetiteljskog pojma znanosti.

Ključne riječi: Ruđer Bošković, britanski klubovi i društva, »Društvo Mjesečarā«, znanost.

From Luna to 'Lunar Men': Ruđer Bošković's Path through English Intellectual Clubs

In this paper Ruđer Bošković's stay in England and his contacts with the English will be considered through the prism of the typical English phenomenon of "clubbing" in the eighteenth century. Bošković's arrival in London in 1760 was marked by the publication of his poem *De Solis ac Lunae defectibus* that he dedicated to the Royal Society, of which he later became a member. Years after his departure from England Bošković was still in contact with his English friends, particularly with Joseph Priestley of the "Lunar Men" from Birmingham (J. Uglow 2002). The Lunar Society consisted of philosophers, scientists, industrialists and intellectuals (J. Watt, J. Roebuck), and their activity began shortly before Bošković's arrival in England.

Bošković's poem about solar and lunar eclipses and the "Lunar Men" provides a framework within which it is possible to map the clubs of Bošković's English acquaintances: these clubs, societies and circles had greater practical importance than the official scientific societies that represented prestige (R. E. Schofield 1957). Belonging to a society/club/circle did not exclude one from belonging to another, and

membership in them oftentimes led to a fruitful exchange of opinions and attitudes (K. Olsen 1999; P. Clark 2000). Thus, for example, Samuel Johnson had his own circle, but was also in contact with representatives of the Scottish Enlightenment, who had their own very specific views on the spirit of the Age of Enlightenment (M. Goldie 1991; A. Broadie 2002).

Based on group biographies of the British clubs and societies, it is assumed that some of the misunderstandings that arose between Bošković and the members of various intellectual societies (Joseph Priestley, for example) could have been the consequence of different understandings of the Enlightenment notion of science.

Key words: Ruđer Bošković, British clubbing**,** "Lunar Society", science.

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Od Priestleya do Faradaya: Kako je digitalizirana rana recepcija Boškovićeve prirodne filozofije na Britanskom otočju (1772-1855)

U najutjecajniju ranu recepciju Boškovićeve prirodne filozofije na Britanskom otočju treba uvrstiti ove knjige i članke, popisane u kronološkom poretku njihova objavljivanja:

1. Joseph Priestley, *The history and present state of discoveries relating to vision, light, and colours* (London: Printed for J. Johnson, 1772), s poglavljem o Boškoviću: »Chapter III. Of the extreme subtilty and momentum of light, and M. Boscovich's general hypothesis«, pp. 383-394;

2. Joseph Priestley, *Disquisitions relating to matter and the spirit* (London: Printed for J. Johnson, 1777), u: »Section II. Of impenetrability, as ascribed to matter«, pp. 11-23, s velikim navodom o Boškoviću na pp. 19-23, preuzetim iz prethodne knjige;

3. John Robison, »On the motion of light, as affected by refracting and reflecting substances, which are also in motion«, *Transactions of the Royal Society of Edinburgh* 2 (1790), pp. 83-111, figg. 1-4, s nadnevkom čitanja »Read by Mr Playfair, April 7, 1788«, koji sadržava i divljenje Boškovićevoj *Teoriji* i kritiku dviju Boškovićevih optičkih rasprava tiskanih 1785. godine;

4. Dugald Stewart, *Elements of the philosophy of the human mind* (London: Printed for A. Strahan, and T. Cadell in the Strand; and W. Creech, Edinburgh, 1792), o Boškovićevu sustavu ili teoriji na pp. 86-87, 90, 392; o Boškovićevoj analogiji prostora i vremena na p. 342;

5. John Leslie, »On heat and climate« [1793], *Annals of Philosophy* 14 (London, July 1819), pp. 5-27, s povijesnom bilješkom na p. 5 da je ranija inačica članka bila čitana u Royal Society of London u veljači ili ožujku 1793. godine, ali nije prihvaćena za objavljivanje u *Philosophical Transactions*; o Boškovićevoj teoriji na pp. 10-11;

6. Thomas Thomson, *System of chemistry in four volumes,* Vol. I. (Edinburgh: Printed by John Brown, 1802), u poglavlju »Chap. VI. Of simple bodies in general«, pp. 380-386, o Boškovićevoj teoriji na p. 386;

7. John Leslie, *Experimental inquiry into the nature, and propagation, of heat* (Edinburgh: Printed for J. Mawman, 1804), u: »Note XI. p.

125«, pp. 515-516, s opisom i crtežom Boškovićeve krivulje silā, te u Chapter VIII., pp. 115-136, u kojem Leslie želi otkriti princip koji »zajedno povezuje ove zanimljive činjenice«, na pp. 118-129;

8. Humphry Davy, *Elements of chemical philosophy*, Part I. Vol. I. (Philadelphia / New York: Published by Bradford and Inskeep, 1812), u: »On the analogies between the undecompounded substances; ideas respecting their nature.«, pp. 273-287, o Boškoviću na p. 279; neizravno o Boškoviću u poglavlju »Cohesion«, pp. 38-39, na p. 38;

9. John Playfair, *Outlines of natural philosophy* (Edinburgh: Printed by A. Neill & Co., 1812), u uvodu, u odsječku »Properties of matter«, na p. 7 s jednom jedinom uputnicom na Boškovićevu *Teoriju*;

10. Dugald Stewart, *Elements of the philosophy of the human mind*, Volume first (Boston: Printed and published by Wells and Lilly, 1814), o Boškovićevu sustavu ili teoriji na pp. 75 i 78; o Boškovićevoj analogiji prostora i vremena na p. 293;

11. John Robison, *A system of mechanical philosophy*, with notes by David Brewster, Vol. I. (Edinburgh: Printed for John Murray, 1822), u člancima pisanim za četvrto izdanje *Encyclopaedia Britannica*:
»Boscovich's Theory.«, pp. 267-339, o Boškoviću na pp. 267-302, nn. 263-300;
»Strength of materials.«, pp. 369-495, na pp. 379, 381-382, 391, 478;

12. John Robison, *A system of mechanical philosophy*, with notes by David Brewster, Vol. II. (Edinburgh: Printed for John Murray, 1822), u: »Resistance of fluids«, pp. 261-368, o Boškoviću na p. 269;

13. John Playfair, »Dissertation, exhibiting a general view of the progress of mathematical and physical science, since the revival of letters in Europe«, rasprava napisana za *Supplement to the Encyclopaedia Britannica* (1819), u: *The works of John Playfair*, Vol. II. (Edinburgh: Printed for Archibald Constable & Co., 1822), na pp. 247 i 386;

14. *The works of John Playfair*, Vol. IV. (Edinburgh: Printed for Archibald Constable & Co., 1822), u sljedećim biografijama i recenzijama: »Biographical account of the late James Hutton, M. D.« [1805], pp. 33-118, na pp. 82, 86-88 o sličnosti između Huttonove i Boškovićeve teorije; »Biographical account of the late John Robison, LL. D.« [1815], pp. 119-178, na pp. 151-153, 156; »Review of Baron De Zach, Attraction des Montagnes« [1816], pp. 467-497, na pp. 476-477; »Review of Kater on the pendulum« [1818], pp. 501-535, na pp. 518-520;

15. Thomas Thomson, *An attempt to establish the first principles of chemistry by experiment*, Vol. I. (London: Printed for Baldwin, Cradock, and Joy, 1825), u: »Chapter II. Of the atomic theory.«, pp. 29-49, o Boškovićevoj teoriji na pp. 30-31;

16. Dugald Stewart, »Dissertation, exhibiting a general view of the progress of metaphysical, ethical, and political philosophy, since the revival of letters in Europe«, rasprava napisana za *Supplement to the Encyclopaedia Britannica* (1821), u: *The works of Dugald Stewart in seven volumes*, Vol. VI. (Cambridge: Published by Hilliard and Brown, 1829), o Boškoviću na pp. 383 i 462;

17. Humphry Davy, »Consolation in travel; or the last days of a philosopher«, pp. 207-388, u: *The collected works of Sir Humphry Davy*, edited by his brother John Davy, Vol. IX. (London: Smith, Elder and Co. Cornhill, 1840); o Boškoviću u posljednjem, nedovršenom, prvi put objavljenom dijalogu: »Dialogue the seventh. On the chemical elements«, pp. 383-388, na pp. 387-388;

18. Michael Faraday, *Experimental researches in electricity*, Vol. II. (London: Richard and John Edward Taylor, 1844), u članku: »A speculation touching electric conduction and the nature of matter«, s

nadnevkom prvoga objavljivanja »Royal Institution, January 25, 1844«, pp. 284-293, o Boškovićevu razumijevanju tvari na pp. 289-291;

19. Michael Faraday, *Experimental researches in electricity,* Vol. III. (London: Bernard Quaritch, 1855), u članku »Thoughts on ray-vibrations«, s nadnevkom prvoga objavljivanja »Royal Institution, April 15, 1846«, pp. 447-452, o Boškoviću na p. 448. (IM)

Izuzevši prvo djelo, Priestleyevu povijest optike, svi se izvori nalaze u najbogatijoj digitalnoj knjižnici *Google Books* na mreži, s glavnim sustavnim nedostatkom – bez cjelovito digitaliziranih crteža na kraju knjige, što je na primjeru Robisonova članka iz 1790., Robisonove rasprave »Boscovich's Theory« (1803) i Lesliejeve knjige *Experimental inquiry into the nature and propagation of heat* (1804) – nenadoknadiv manjak. Priestleyevo djelo *The history and present state of discoveries relating to vision, light, and colours* (1772) digitalizirano je u sklopu pomno osmišljenoga europskoga projekta *European Cultural Heritage Online* (ECHO), koji vodi Max-Planck-Gessellschaft u Münchenu u tijesnoj suradnji s Max-Planck-Institut für Wissenschaftsgeschichte u Berlinu i njegovom knjižnicom. Takva zavidna dostupnost izvorā potpuno je promijenila uvjete za proučavanje rane recepcije Boškovićeve prirodne filozofije na Britanskom otočju, ali ipak ponekad treba prethodno znati bibliografsku jedinicu koju tražite da biste je i pronašli u digitalnim knjižnicama. (MMJ)

Ključne riječi: modeli digitalizacije rijetke knjige; Google Books, ECHO; Joseph Priestley, Humphry Davy, Michael Faraday; škotsko prosvjeti-teljstvo, John Robison, Dugald Stewart, Thomas Thomson, John Leslie, John Playfair.

From Priestley to Faraday: Digitisation of the Early Reception of Bošković's Natural Philosophy on the British Isles (1772-1855)

The most influential early reception of Bošković's natural philosophy on the British Isles should include the following books and papers, compiled chronologically according to publication:

1. Joseph Priestley, *The history and present state of discoveries relating to vision, light, and colours* (London: Printed for J. Johnson, 1772), with chapter on Bošković: "Chapter III. Of the extreme subtilty and momentum of light, and M. Boscovich's general hypothesis," pp. 383-394;

2. Joseph Priestley, *Disquisitions relating to matter and the spirit* (London: Printed for J. Johnson, 1777), in "Section II. Of impenetrability, as ascribed to matter," pp. 11-23, with extensive quotation on Bošković on pp. 19-23, borrowed from the previous book;

3. John Robison, "On the motion of light, as affected by refracting and reflecting substances, which are also in motion," *Transactions of the Royal Society of Edinburgh* 2 (1790), pp. 83-111, figg. 1-4, with the datation of the reading "Read by Mr Playfair, April 7, 1788," which contains also the admiration for Bošković's *Theory* and the criticism of Bošković's two optical papers printed in 1785;

4. Dugald Stewart, *Elements of the philosophy of the human mind* (London: Printed for A. Strahan, and T. Cadell in the Strand; and W. Creech, Edinburgh, 1792), on Bošković's system or theory on pp. 86-87, 90, 392; on Bošković's analogy of space and time on p. 342;

5. John Leslie, "On heat and climate" [1793], *Annals of Philosophy* 14 (London, July 1819), pp. 5-27, with historical note on p. 5 explaining that an earlier copy of the paper had been read at the Royal Society of

London in February or March 1793, but was not accepted for publication in the *Philosophical Transactions*; on Bošković's theory on pp. 10-11;

6. Thomas Thomson, *System of chemistry in four volumes,* Vol. I. (Edinburgh: Printed by John Brown, 1802), in "Chap. VI. Of simple bodies in general," pp. 380-386, on Bošković's theory on p. 386;

7. John Leslie, *Experimental inquiry into the nature, and propagation, of heat* (Edinburgh: Printed for J. Mawman, 1804), in "Note XI. p. 125," pp. 515-516, with the description and drawing of Bošković's curve of forces, and in Chapter VIII., pp. 115-136, in which Leslie aims to reveal the principle that "will connect together those curious facts," on pp. 118-129;

8. Humphry Davy, *Elements of chemical philosophy*, Part I. Vol. I. (Philadelphia / New York: Published by Bradford and Inskeep, 1812), in "On the analogies between the undecompounded substances; ideas respecting their nature," pp. 273-287, on Bošković on p. 279; implicitly on Bošković in the chapter "Cohesion," pp. 38-39, on p. 38;

9. John Playfair, *Outlines of natural philosophy* (Edinburgh: Printed by A. Neill & Co., 1812), in introduction, in the section "Properties of matter," on p. 7 with a single reference to Bošković's *Theory*;

10. Dugald Stewart, *Elements of the philosophy of the human mind*, Volume first (Boston: Printed and published by Wells and Lilly, 1814), on Bošković's system or theory on pp. 75 and 78; on Bošković's analogy of space and time on p. 293;

11. John Robison, *A system of mechanical philosophy*, with notes by David Brewster, Vol. I. (Edinburgh: Printed for John Murray, 1822), in the articles written for the fourth edition of the *Encyclopaedia Britannica*:

"Boscovich's Theory," pp. 267-3339, on Bošković on pp. 267-302, nn. 263-300;

"Strength of materials," pp. 369-495, on pp. 379, 381-382, 391, 478;

12. John Robison, *A system of mechanical philosophy*, with notes by David Brewster, Vol. II. (Edinburgh: Printed for John Murray, 1822), in "Resistance of fluids," pp. 261-368, on Bošković on p. 269;

13. John Playfair, "Dissertation, exhibiting a general view of the progress of mathematical and physical science, since the revival of letters in Europe," dissertation written for the *Supplement to the Encyclopaedia Britannica* (1819), in *The works of John Playfair*, Vol. II. (Edinburgh: Printed for Archibald Constable & Co., 1822), on pp. 247 and 386.

14. *The works of John Playfair*, Vol. IV. (Edinburgh: Printed for Archibald Constable & Co., 1822), in the following biographies and reviews:

"Biographical account of the late James Hutton, M. D." [1805], pp. 33-118, on pp. 82, 86-88 on the affinity between Hutton's and Bošković's theory;

"Biographical account of the late John Robison, LL. D." [1815], pp. 119-178, on pp. 151-153, 156;

"Review of Baron De Zach, Attraction des Montagnes" [1816], pp. 467-497, on pp. 476-477;

"Review of Kater on the pendulum" [1818], pp. 501-535, on pp. 518-520;

15. Thomas Thomson, *An attempt to establish the first principles of chemistry by experiment*, Vol. I. (London: Printed for Baldwin, Cradock, and Joy, 1825), in "Chapter II. Of the atomic theory," pp. 29-49, on Bošković's theory on pp. 30-31;

16. Dugald Stewart, "Dissertation, exhibiting a general view of the progress of metaphysical, ethical, and political philosophy, since the revival of letters in Europe," dissertation written for the *Supplement to the Encyclopaedia Britannica* (1821), in *The works of Dugald Stewart in seven volumes*, Vol. VI. (Cambridge: Published by Hilliard and Brown, 1829), on Bošković on pp. 383 and 462;

17. Humphry Davy, “Consolation in travel; or the last days of a philosopher,” pp. 207-388, in *The collected works of Sir Humphry Davy*, edited by his brother John Davy, Vol. IX. (London: Smith, Elder and Co. Cornhill, 1840); on Bošković in the last, unfinished, first time published dialogue: “Dialogue the seventh. On the chemical elements,” pp. 383-388, on pp. 387-388;

18. Michael Faraday, *Experimental researches in electricity*, Vol. II. (London: Richard and John Edward Taylor, 1844), in the paper “A speculation touching electric conduction and the nature of matter,” with the datation of the first publication “Royal Institution, January 25, 1844,” pp. 284-293, on Bošković’s understanding of matter on pp. 289-291;

19. Michael Faraday, *Experimental researches in electricity*, Vol. III. (London: Bernard Quaritch, 1855), in the paper “Thoughts on ray-vibrations,” with the datation of the first publication “Royal Institution, April 15, 1846,” pp. 447-452, on Bošković on p. 448. (IM)

With the exception of the first work, Priestley’s history of optics, all the sources may be found in the richest digital *Google Books* online library, with a major systematic drawback – absence of a full reproduction of the drawings at the end of the book, which on the example of Robison’s paper from 1790, Robison’s treatise “Boscovich’s Theory” (1803), and Leslie’s book *Experimental inquiry into the nature and propagation of heat* (1804) – represents an irreparable flaw. Priestley’s work *The history and present state of discoveries relating to vision, light, and colours* (1772) has been digitised within a carefully designed European project *European Cultural Heritage Online* (ECHO), conducted by Max-Planck-Gessellschaft in Munich in close collaboration with the Max-Planck-Institut für Wissenschaftsgeschichte in Berlin and its library. Such admirable accessibility of the sources had a profound effect on the conditions for the research of the early reception of

Bošković's natural philosophy on the British Isles, although it is still sometimes necessary to be equipped with the bibliographic item you are looking for in order to find it in the digital libraries. (MMJ)

Key words: models of digitisation of rare book; Google Books, ECHO; Joseph Priestley, Humphry Davy, Michael Faraday; Scottish Enlightenment, John Robison, Dugald Stewart, Thomas Thomson, John Leslie, John Playfair.

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Recepcija Boškovićeve prirodne filozofije u tezarijima Leopolda Biwalda, Pála Makóa i Ivana Krstitelja Horvatha (1765-1777)

Osim sveučilišnih udžbenika, istaknuti boškovićevci, koji su imali katedre na sveučilištima u Srednjoj Europi, priređivali su i tiskali ispitne tezarije na kraju akademske godine. Ne samo udžbenici, nego i tezariji svjedoče o različitim oblicima njihova prihvaćanja Boškovićeve prirodne filozofije.

Kad je 1765. godine Leopold Biwald pripremio *Assertiones ex universa philosophia .... in alma ac celeberrima Universitate Graecensi*, a za defendenta odabrao senjskoga plemića Maksimilijana Čolića, čak 40 od 50 teza odnosilo se na opću i posebnu fiziku. U tom tezariju profesor na Sveučilištu u Grazu nije prihvatio Boškovićev nauk o točkama tvari: »Počela tijelā neke su najmanje molekule, obdarene različitim silama na različitim međusobnim udaljenostima, kojima se molekule uzajamno ili

privlače ili odbijaju.« (th. XI) Ali je usvojio njegov nauk o privlačnim i odbojnim silama, koje se ravnaju po »jedinstvenom zakonu prirode« (th. XII). Nakon trinaeste tvrdnje »Ovaj zakon silā prikladno prikazuje jedinstvena neprekinuta krivulja (*curva unica continua*).«, Biwald je podrobno uputio na prirodne fenomene koji dokazuju da u prirodi djeluju privlačne i odbojne sile i da se događaju »izmjene sil (*virium alternationes*) od privlačne u odbojnu i obratno. Uz to, slijedio je i Boškovićevu tvrdnju o naravi svjetlosti: »najsuptilniji izljev svjetlećega tijela« (*effluvium subtilissimum corporis lucentis,* th. XLII). Isti je tezarij Biwald tiskao i sljedeće godine.

Godine 1766. tiskane su u Beču opširne *Assertiones ex physica.* Branio ih je barun Joseph Penckler, a bile su uvrštene u za tu prigodu tiskano izdanje Boškovićevih i Benvenutijevih rasprava objavljenih pod zajedničkim naslovom *Dissertationes physicae tres.* Protivno pravilima žanra, teze nisu bile obrojčene niti je izrijekom naveden profesor koji ih je sastavio. Autora otkriva podatak da je tezarij bio branjen na Kraljevskom kolegiju Theresianumu (*in Collegio Regio Theresiano*), a u razdoblju 1763.-1773. profesor matematike i filozofije na Theresianumu bio je upravo Pál Makó.

Assertiones ex physica razdijeljene su u 15 subtezarija. Već su prva dva jasno dokumentirala Boškovićev utjecaj. U prvom subtezariju »De lege virium in natura existentium« Makó je izložio Boškovićev nauk o privlačnim i odbojnim silama, uključivši i podroban opis Boškovićeve krivulje silā. U posljednjoj rečenici poslužio se prvi put ključnim Boškovićevim nazivkom *materiae puncta*, a da ga prethodno nije uveo. Dotad se služio nazivkom *elementa corporum*. U drugom subtezariju »De praecipuis corporum proprietatibus« bečki je profesor s pomoću Boškovićeva zakona silā prvo razjasnio svojstvo fizičkih tijela koje je nazvao »čvrstoća ili neproničnost, također fizički neprekinuta protežnost«

(*soliditas seu impenetrabilitas, extensio item physice continua*). U tom je subtezariju još obradio tri opća svojstva tijelā: djeljivost, koheziju i elastičnost. Zaključno je Makó upozorio na »različitost česticā« (*varietas particularum*), što omogućuje da se lako mogu razumjeti kemijske promjene kao što su »vrenja, otapanja, taloženja tijelā« (*corporum fermentationes, solutiones, praecipitationes*).

U sedmom subtezariju »De universali materiae gravitate« Makó je razjasnio kako djeluje gravitacija za različite slučajeve, počevši od najjednostavnijeg, kad točka tvari smještena izvan sferne homogene plohe djeluje na pojedine točke te plohe. Dok je u prvom subtezariju oklijevao, ovdje se otpočetka služio Boškovićevim nazivkom *punctum materiae*. U osmom subtezariju »De astronomia physica« prihvatio je Boškovićevu modifikaciju Newtonova zakona opće gravitacije: periodično gibanje planeta i kometa slijedi »što približnije« (*quam proxime*), a ne točno (*accurate*) Newtonov zakon.

Deseti subtezarij »De lumine, coloribus et igne« otvorila je tvrdnja o naravi svjetlosti: »Svjetlost se sastoji od vrlo finih čestica svjetlećih tijela.« Makó je u tom pitanju bio Boškovićevim istomišljenikom. U posljednji, petnaesti subtezarij uvrstio je i tvrdnju o naravi okusa, vrlo blizak Boškovićevu opisu. Isti je Makóov tezarij tiskan i na kraju 1767. i 1768., u zasebnim knjižicama, ali pod naslovom *Materia tentaminis publici* uobičajenim tada na Theresianumu.

Godine 1777. Ivan Krstitelj Horvath, profesor fizike na Sveučilištu u Trnavi (*Regia Universitas Tyrnaviensis*), objavio je svoj tezarij *Tentamen publicum ex praelectionibus physicis*. Branio ga je mladi pavlin Valentin Salaj 26. travnja 1777., i to u nazočnosti direktora Filozofskog fakulteta Mihovila Šoretića, ujedno profesora patologije i medicinske prakse, i dekana Filozofskoga fakulteta Josipa Mitterpachera, profesora više matematike.

Prvi subtezarij »De principiis et communibus corporum proprietatibus« Horvath je sastavio pod izričitim utjecajem Boškovićeve teorije silā. Prvo je izložio Boškovićev nauk o privlačnim i odbojnim silama: pojam sile kao *determinatio*, krivulja silā, granice kohezije u njezinim nul-točkama, tumačenje fluidnosti i elastičnosti tijelā s pomoću silā; kemijska svojstva ovisna o uzajamnim silama dviju molekulama. Slijedio je i Boškovićevu sentenciju o sili inercije: »Sila, uzeta kao određenje mirovanja ili jednolikoga gibanja po pravcu, posve pristaje ne samo pojedinačnim elementima, nego i tijelima.«

S druge strane, Horvath o naravi elemenata tvari nije izrekao nijednu tezu niti se poslužio Boškovićevim nazivkom *materiae punctum*. U subtezariju »De viribus centralibus et gravitate universali« Horvath nije prihvatio Boškovićevu modifikaciju Newtonova zakona opće gravitacije. Subtezariji »Ex mechanica« i »Ex astronomia physica« također ne očituju Boškovićev utjecaj.

Tezariji Leopolda Biwalda i Pála Makóa iz fizike, prvi tiskan 1765. u Grazu, a drugi 1766. u Beču, zrcale snažan utjecaj Boškovićeve prirodne filozofije na austrijskim sveučilištima prije ukinuća Družbe Isusove u dvama različitim oblicima. A tezarij Ivana Krstitelja Horvatha, bivšega isusovca, potvrđuje da se Boškovićev utjecaj nastavio i u novim društvenim i školskim okolnostima na državnom Sveučilištu u Trnavi. Ipak, sva tri profesora ne usvajaju u potpunosti Boškovićev nauk o strukturi tvari, najvjerojatnije pod pritiskom jakih prigovora koji su javno bili upućeni Boškovićevim točkama tvari (Scarella).

Ključne riječi: Ruđer Bošković, Leopold Biwald, Pál Makó, Ivan Krstitelj Horvath; točke tvari, zakon silā, krivulja silā, granice kohezije; opća svojstva tijelā, gravitacija, kemijske operacije, svjetlost, okus

The Reception of Bošković's Natural Philosophy in the Thesauri of Leopold Biwald, Pál Makó, and Ivan Krstitelj Horvath (1765-1777)

Apart from the university textbooks, distinguished Boscovichians who held chairs at the universities of Central Europe prepared and printed the thesauri at the end of the academic year. Their thesauri also bear witness to a diversity in the reception of Bošković's natural philosophy.

When in 1765 Leopold Biwald prepared the *Assertiones ex universa philosophia .... in alma ac celeberrima Universitate Graecensi*, and chose Maksimilijan Čolić, nobleman of Senj, to defend them, as many as forty out of fifty theses pertained to general and particular physics. In this thesaurus the professor of the University of Graz failed to adopt Bošković's doctrine on the points of matter: "The principles of bodies are some smallest molecules, endowed by various forces at the various distances, by which the molecules are mutually attracted or repulsed." (th. XI) But he adopted Bošković's doctrine on the attractive and repulsive forces, which are governed by the "unique law of nature" (th. XII). Following the thirteenth thesis "This law of forces is aptly shown by a unique continuous curve (*curva unica continua*)," Biwald made a most thorough examination of the natural phenomena which prove the action of the attractive and repulsive forces in nature and the "alternations of forces" (*virium alternationes*) from attractive to repulsive and vice versa. Moreover, he followed Bošković's thesis on the nature of light (*effluvium subtilissimum corporis lucentis*, th. XLII). Next year Biwald reprinted this thesaurus.

In 1766 extensive *Assertiones ex physica* were printed in Vienna. They were defended by Baron Joseph Penckler and accompanied the edition of Bošković's and Benvenuti's treatises published under the title *Dissertationes physicae tres.* Contrary to the genre standards, the theses

were not numbered, nor was the name of the professor who wrote them explicitly cited. The information that the thesaurus was defended at the *Collegium Regium Theresianum* helps trace the author, as in the period 1763-1773 mathematics and philosophy were lectured at the *Theresianum* by no other than Pál Makó.

Assertiones ex physica are divided into fifteen chapters. Bošković's influence clearly reverberates as early as the first two chapters. In the first chapter "De lege virium in natura existentium," Makó expounded Bošković's doctrine on the attractive and repulsive forces, having included a detailed description of Bošković's curve of forces. In the last sentence he used for the first time Bošković's key term *materiae puncta*, without formerly introducing it. Until then he had used the term *elementa corporum*. In the second chapter "De praecipuis corporum proprietatibus," by means of Bošković's law of forces the Viennese professor first explained the property of physical bodies which he termed "solidity or impenetrability, also physically continuous extension" (*soliditas seu impenetrabilitas, extensio item physice continua*). In this chapter he discussed the three general properties of bodies: divisibility, cohesion and elasticity. In conclusion, Makó pointed to the "variety of particles" (*varietas particularum*), which helps the understanding of the chemical changes such as "fermentations, solutions, precipitations of the bodies" (*corporum fermentationes, solutiones, praecipitationes*).

In the seventh chapter "De universali materiae gravitate," Makó has explained the force of gravitation in different cases, starting with the simplest, when the point of matter situated outside the spherical surface acts on the particular points of that surface. Although still hesitant in the first chapter, here from the very start he used Bošković's term *punctum materiae*. In the eighth chapter "De astronomia physica," he accepted Bošković's modification of Newton's law of universal gravitation:

periodical motion of the planets and comets follows “more approximately” (*quam proxime*) and not accurately (*accurate*) Newton’s law.

The tenth chapter “De lumine, coloribus et igne” opens with a thesis on the nature of light: “Light is composed of most tenuous particles of the illuminant bodies.” Makó shared Bošković’s view on this problem. In the last, fifteenth chapter he also included a thesis on the nature of taste, very close to Bošković’s description. The mentioned Makó’s thesaurus was also printed at the end of 1767 and 1768, as a separate volume but under the title *Materia tentaminis publici*, commonly used at the Theresianum at the time.

In 1777 Ivan Krstitelj Horvath, professor of physics at the University of Tyrnau (*Regia Universitas Tyrnaviensis*), published his thesaurus *Tentamen publicum ex praelectionibus physicis*. It was defended by a young Paulin Valentin Salaj on 26 April 1777, before Mihovil Šoretić, director of the Faculty of Philosophy and professor of pathology and medical practice, and Josip Mitterpacher, dean of the Faculty of Philosophy and professor of higher mathematics.

The first chapter “De principiis et communibus corporum proprietatibus” Horvath composed under direct influence of Bošković’s theory of forces. He first exposed Bošković’s doctrine on the attractive and repulsive forces: notion of force as *determinatio*, curve of forces, limits of cohesion in its null-points, interpretation of fluidity and elasticity of bodies by means of forces; chemical properties depending on mutual forces between the molecules. He also followed Bošković’s sentence on the force of inertia: “Force, considered as determination of being at rest or of moving uniformly in straight line, may be attributed not only to the individual elements, but also to the bodies.”

On the other hand, on the nature of the elements of matter Horvath did not put forward a single thesis nor did he attempt to use Bošković's term *materiae punctum*. In the chapter "De viribus centralibus et gravitate universali," Horvath did not accept Bošković's modification of Newton's law of universal gravitation. Nor can Bošković's influence be traced in the chapters "Ex mechanica" and "Ex astronomia physica".

The physics thesauri of Leopold Biwald and Pál Makó, the former's published in Graz in 1765 and the latter's in Vienna in 1766, mirror a strong influence of Bošković's natural philosophy at the Austrian universities prior to the suppresion of the Society of Jesus in two different forms. However, the thesaurus of Ivan Krstitelj Horvath, former Jesuit, confirms the continuity of Bošković's influence in the new social and educational circumstances at the state university in Tyrnau. Apparently, Bošković's doctrine on the structure of matter was not fully adopted by the three professors, most probably because of the strong objections publicly raised to Bošković's points of matter (Scarella).

Key words: Ruđer Bošković, Leopold Biwald, Pál Makó, Ivan Krstitelj Horvath; points of matter, law of forces, curve of forces, limits of cohesion; general properties of bodies, gravitation, chemical operations, light, taste

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Sličnosti i razlike između Petrićevih i de Dominisovih pogleda o strukturi tvari

Poznato je da su Frane Petrić i Marko Antun de Dominis djelovali u okviru oprečnih prirodnofilozofijskih sustava, prvi u okviru platoničkoga odnosno novoplatoničkoga, a drugi u okviru peripatetičkoga. No, oni su o strukturi tvari izložili slična gledišta.

Kad u *Pancosmia* (1591) izlaže o krutim anorganskim tvarima, Petrić tvrdi da su one građene od čestica koje su nastale kontrakcijom od četvrtoga Petrićeva počela – fluida (*fluor*). Svojstva i raznolikosti krutih tvari ovise o omjeru tih čestica prema trećem Petrićevu počelu – toplini (*calor*). Tako je svaka tvar određena odnosom fluida i topline. Pri tome se fluid u tekućim i krutim tvarima pojavljuje u obliku nedjeljivih čestica. Te su čestice međusobno spojene tzv. ljepilom (*gluten*). U cijeloj povijesti znanosti Petrićev *gluten* prvi je začetak ideje o postojanju kemijske veze između čestica tvari. Danas znamo da je kemijska veza utemeljena na principu energije, a Petrić je gluten u 16. stoljeću uveo s pomoću principa topline.

U svom posljednjem tiskanom djelu *Euripus* (1624) de Dominis ne koristi nazive *atomos* i *corpuscula atoma*, nego govori o čestici (*particula*) i kuglici (*globula*). Oblik čestice uspoređuje sa zrnom graška ili leće. Oko okrugle čestice koja je smještena u središtu svijeta kružno se slažu ostale čestice zemlje, a potom vode. One zbog svoje okrugloće neće moći biti priljubljene jedna uz drugu, pa premda Dominis to ne

zaključuje, slijedi da između njih postoje mala područja praznog prostora. Stoga se de Dominisovo gledište o okruglim česticama tvari kosi s peripatetičkim naukom o nepostojanju praznog prostora.

Premda je Frane Petrić bio 31 godinu stariji od de Dominisa, gledišta filozofa iz Cresa o strukturi tvari su znatno inovativnija zato što on prvi put spominje postojanje »nečega« između čestica tvari, što će se u kasnijem razvitku znanosti nazvati kemijskom vezom.

Ključne riječi: Frane Petrić, Marko Antun de Dominis; platonička prirodna filozofija, peripatetička prirodna filozofija; fluid, toplina, gluten, kemijska veza.

Similarities and Differences Between Petrić's Views of the Structure of Matter and Those of de Dominis

Frane Petrić and Marko Antun de Dominis belonged to two contrasted systems of natural philosophy, the former's being that of Platonism and Neoplatonism, and the latter's constructed within the frame of the Peripatetic. But on the structure of matter they expounded similar views.

In his exposition on solid inorganic matters in *Pancosmia* (1591), Petrić states that they are composed of particles formed by contraction of Petrić's fourth principle of fluid (*fluor*). The properties and diversities of the solid matters depend on the ratio of these particles to Petrić's third principle of heat (*calor*). Thus every matter is determined by the relationship between fluid and heat. In doing so, the fluid in the liquid and solid matters appears in the form of indivisible particles. These particles are mutually bonded with the so-called glue (*gluten*). In the whole history of science Petrić's *gluten* may be said to have represented the embryo of an idea of the existence of a chemical bond between the

particles of matter. Today we know that a chemical bond is based on the principle of energy, whereas in the sixteenth century Petrić introduced gluten by means of the principle of heat.

In his last published work, *Euripus* (1624), de Dominis does not use the terms *atomos* and *corpuscula atoma*, but speaks of particle (*particula*) and small globe (*globula*). He compares the form of the particle with a pea or lentil seed. Around the round particle in the centre of the world come the other earth particles, and then the water particles. Their roundness prevents them from adhering to each other, and although de Dominis makes no such conclusion, it follows that between them there remain small areas of void space. Therefore de Dominis's view of the round particles of matter is contradictory to the Peripatetic doctrine on the nonexistence of void space.

Although Frane Petrić was thirty-one years older than de Dominis, the views of the Cres philosopher on the structure of matter prove more innovative, because he is the first to mention the existence of »something« between the particles of matter, which in the later development of science came to be recognised as chemical bond.

Key words: Frane Petrić, Marko Antun de Dominis; Platonic natural philosophy, Peripatetic natural philosophy; fluid, heat, gluten, chemical bond.

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Odnos glagolskih oblika grčkog i latinskog jezika u Petrićevu prijevodu iz *Discussiones peripateticae*

Prevodeći brojne grčke citate u djelu *Discussiones peripateticae*, Petrić se opredijelio za tehniku doslovnog prevođenja, što je razumljivo kad je u pitanju filozofski diskurs. Smatrao je da tako postiže najveću moguću ekvivalenciju, tj. da odgovara na temeljni zadatak prevođenja: ostaviti na čitatelja učinak što sličniji učinku izvornog teksta originala na izvorne čitatelje.

Petrić to nastoji postići ne samo sadržajem nego i izrazom: identičnim redom riječi, izborom jednakih gramatičkih oblika i sl. Međutim, grčki je glagolski sistem bogatiji od latinskoga i Petrić se morao snalaziti u mogućnostima latinskoga jezika. Upravo se u takvim detaljima dokazao kao dobar znalac klasičnih jezika.

*Ključne riječi***:** *Discussiones peripateticae,* filozofski diskurs, doslovno prevođenje

The Relationship Between Greek and Latin Verb Forms in *Discussiones peripateticae* of Franciscus Patricius

In translating Greek philosopher quotes into Latin, Franciscus Patricius used the literal, ‘word-for-word’ translation technique according to the philosophical discourse of his work *Discussiones peripateticae*. Patricius

was convinced that such a strategy was the most efficient in achieving the highest degree of equivalence in translation.

In order to accomplish the primary goals of translation—accuracy and the maximum conformity to the original text—Patricius chooses the same grammatical forms, introduces identical word order etc. Due to the complexity of the Greek verb system he encountered difficulties in the translation of Greek verb forms into Latin. However, Patricius successfully solved the problem within the possibilities of the Latin language and therefore proved himself an expert in both ancient languages.

Ključne riječi: *Discussiones peripateticae,* philosophical discourse, 'word-for-word' translation

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Usporedba Picova i Skalićeva razumijevanja kršćanske kabale

Osnivačem učenja koje će biti poznato pod nazivom 'kršćanska kabala' smatra se renesansni filozof Giovanni Pico della Mirandola (1463.–1494.). On je napisao 72 kabalističke konkluzije koje su sastavni dio njegovih *900 konkluzija*, a koje je 1486. godine objavio u Rimu.

Kršćansku kabalu u svom *Epistemonu* tematizira i hrvatski filozof, polihistor i pustolov Pavao Skalić (1534.–1575.). Skalićevo djelo *Epistemon* prvi je put objavljeno u njegovom protestantskom razdoblju

života u Baselu 1559., a drugi put u povratničkom katoličkom u Kölnu 1571. godine.

U radu ću iznijeti Picovo i Skalićevo razumijevanje kršćanske kabale te pokazati koje sličnosti, a koje razlike postoje u njihovim shvaćanjima kabale, osobito zato jer Skalić među prvima nakon Pica tematizira kabalu kao kršćansku kabalu.

Ključne riječi: kršćanska kabala, Giovanni Pico della Mirandola, Pavao Skalić

The comparison of Pico's and Skalić's understanding of Christian Cabala

Renaissance philosopher Giovanni Pico della Mirandola (1463–1494) is generally considered to be the founder of a doctrine which later became known as Christian Cabala. His seventy-two Cabalistic Conclusions are an integral part of his *Conclusiones sive Theses DCCCC* published in Rome in 1486.

Pavao Skalić, a Croatian philosopher, polymath and adventurer (1534–1575), also wrote about Christian Cabala. Skalić's *Epistemon* was first published in his Protestant days in Basel in 1559, and republished in 1571 during his Catholic period in Cologne.

In this paper I will discuss the main points of Pico's and Skalić's interpretation of Christian Cabala, and also draw special attention to the similarities and differences in their views, since Skalić is one of the first authors who discussed Christian Cabala after Pico's introduction of Christian interpretation of Jewish mysticism.

Key words: Christian Cabala, Giovani Pico della Mirandola, Pavao Skalić

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Ruđer Bošković između Newtona i Leibniza

Isaac Newton (1642.-1727.) i Gottfried Wilhelm Leibniz (1646.-1716.) spadaju među značajne figure novovjekovne znanosti i filozofije. Isaac Newton smatra se utemeljiteljem klasične mehanike, a Leibniz je danas poznat uglavnom kao filozof. U standardnim udžbenicima fizike njegovo se ime ne spominje, iako je on posvetio puno energije osmišljavanju svoje filozofije prirode. U povijesti fizike on je značajan po svojoj polemici sa Samuelom Clarkeom (1675.-1729.) oko Newtonove mehanike. U toj polemici, smatra se, Clarke je zastupao Newtonovo mišljenje. Među razmatranim problemima izuzetno važno bilo je pitanje o naravi prostora i vremena. Leibniz je zastupao stanovište da postoje prostorni i vremenski odnosi među tijelima, a ne prostor i vrijeme sami po sebi.

Ruđer Bošković (1711.-1787.) pokušao je pomiriti te dvije koncepcije realnosti. U vezi s time mogu se postaviti dva fundamentalna pitanja.

1. Kakvu koncepciju ima fizika o sebi i o svome razvoju?

Naime, Newtonova mehanika se i danas smatra 'važećom', uz ograničenja koja joj postavljaju teorija relativnosti i kvantna mehanika. S druge strane, Leibnizova kritika sigurno je pomogla daljnjem razvoju fizike – realizaciji Einsteinove sinteze mehanike i elektrodinamike u teoriju relativnosti.

2. Koji je Boškovićev doprinos? Je li njegov doprinos važan za razvoj fizike?

Glavni Boškovićev doprinos je zamisao da je tvar građena od »neprotežnih točaka tvari obdarenih privlačnim i odbojnim silama i silom inercije« koji su u 19. stoljeću nazvani »točkastim atomima«. Konceptualno, Boškovićeve točke tvari nalaze se između Newtonovih atoma u vakuumu i Leibnizovih monada te predstavljaju korak prema pojmu polja, koji je od izuzetnog značenja za suvremenu fiziku.

Ključne riječi: Bošković, Newton, Leibniz, povijest fizike

Ruđer Bošković Between Newton and Leibniz

Isaac Newton (1642-1727) and Gottfried Wilhelm Leibniz (1646-1716) represent major figures of the early modern science and philosophy. Isaac Newton is considered to be the founder of classical mechanics, while Leibniz is now mostly known as a philosopher. In standard textbooks of physics Leibniz's name is not mentioned, although he dedicated a lot of time to forge his philosophy of nature. In the history of physics he is well known for his polemics with Samuel Clarke (1675-1729) on Newton's mechanics, in which Clarke is generally held to have defended Newton's opinions. Among the problems considered, one of the most important was the one concerning the nature of space and time. Leibniz argued that there are only spatial and temporal relations between bodies, and not space and time by themselves.

Ruđer Bošković (1711-1787) tried to combine these two conceptions of reality. This raises two fundamental questions.

1. What conception does physics have of itself and its history?

Namely, Newton's mechanics is still considered as a 'valid theory', taking into account the constraints of the relativity theory and quantum mechanics. On the other side, the Leibniz critique of Newton was essential for Einstein's synthesis of mechanics and electrodynamics in the theory of relativity.

2. What is Bošković's contribution? Is it essential for the development of physics?

Bošković's most important contribution is his concept of matter which consists of "non-extended points of matter endowed with attractive and repulsive forces, and with the force of inertia," which were called 'punctual atoms' in the 19th century. Conceptually, they are between Newton's atoms in vacuum and Leibniz's monads, and represent a step toward the notion of field, which is one of the most fundamental concepts of modern physics.

Key words: Bošković, Newton, Leibniz, history of physics.

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Petrićev odnos prema prirodi u gradu iz perspektive njegova djela *La città felice*

Referat je pokušaj i jedan od mogućih prijedloga obrade Petrićeva odnosa prema prirodi u gradu iz perspektive njegova djela *La città felice* (1553). Po uzoru na Veneciju, Petrić postavlja aristokratski ideal života, u koji

implementira ideale renesansnog razdoblja, između ostalog i nizom zanimljivih aktualnih pitanja: upute za izgradnju, geografski smještaj, urbanističko planiranje, klimatska i druga obilježja.

Postavlja se pitanje zašto Petrić nije postavio vrt u grad. Naime, Venecijanci su svoju važnost pokazivali i kroz jezik ukroćene prirode. Tipologija venecijanskih vrtova šesnaestoga stoljeća, koja je vrlo jasno izražena npr. uz kanal Giudecca, postala je temeljno pravilo za određivanje urbanističkog koncepta grada. Premda ekološki uvjeti lagune nisu bili prikladni za utemeljenje vrtova, oni su postali neizbježnim dijelom izgleda grada.

Tako je Venecija, što se tiče postavljanja 'druge' prirode u grad, zapravo antipol Petrićeva *Sretnog grada*. Pristup bitnim elementima življenja i idealne harmonije vodi Petrića do negiranja nekih sastavnica življenja, kao što je vrt, koji je od antike nadalje bio namijenjen prije svega izabranicima za koje Petrić i utemeljuje svoj sretan grad.

Ključne riječi: Petrić, grad, vrt, priroda, Venecija, vizualna poruka

Petrić's Attitude to Nature in the City from the Perspective of His *La città felice*

The paper attempts to outline Petrić's attitude to nature in a city as described in his work *La città felice*. Modelling on Venice, Petrić sets an aristocratic ideal of life which is strongly permeated by the ideals of the Renaissance, introducing his views on a series of current topics: instructions for construction, geographical position, urban planning, climate and other features.

A dilemma arises as to why Petrić did not place a garden in the city. The Venetians, however, demonstrated their importance through the

language of domesticated nature. The typology of Venetian gardens of the sixteenth century, most clearly expressed, for instance, along the Giudecca Canal, became a fundamental rule of defining the urban layout. Although the ecological conditions of the lagoon were hostile for the purpose of setting up gardens, the latter have become an inescapable element of the city's image.

With regard to introducing 'the other' nature into a city, Venice is thus counterpointed with Petrić's *La città felice*. Petrić's statement of the essential elements of living and ideal coexistence consistently leads the author to negate certain components of living, such as a garden, which from the classical times on was primarily reserved for the elite, for whom Petrić designs his happy city.

Key words: Petrić, city, garden, nature, Venice, visual message