# *AN INVESTIGATION INTO THE LOAN-TRANSLATIONS IN OLD ROMANIAN. CASE STUDY:* GRAMATICA FIZICII[1]

***Abstract****: The present paper examines the role played by loan-translations in the constitution process of the Romanian scientific lexicon. The text examined, a translation and adaptation of an Italian treaty of natural science, was elaborated by bishop Amphiloch of Hotin at the end of the 18th century and it is of a paramount importance for the history of our scientific terminology. The author presents the lexical loan-translations excerpted from the text, depending on their appurtenance to a specific scientific field (anatomy, physics, geography, astronomy), together with their etymons, and examines the way in which the scholar resorted to lexical loan-translations to render various scientific notions. The author also analyses the causes which led to their appearance in the scientific literature of the period in general and in this text, in particular.*

***Key words****: loan-translations, old Romanian, scientific terminologies*

**0**. There is a vast specialty literature as regards loan-translations, emphasizing its role in enriching the literary language by adaptation or changes of form and/or content [2]; the Romanian linguistics benefits by a systematic and coherent classification of the phenomenon[3]. Those studies examining the diachronic aspect of loan-translations[4] and, especially, those examining the lexical loan-translations used in the scientific texts elaborated in the old and pre-modern stage of the Romanian language are less numerous[5]. In our attempt at studying the influence this linguistic mechanism had on the constitution of Romanian scientific terminology, we focus on a text of a major importance in the process of Romanian scientific vocabulary constitution, which, unfortunately, has not profited up to now by a closely examination[6]. Our paper aims at underlining the way in which the author of *Gramatica fizicii* [The Grammar of Physics],

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[2] Out of the vast bibliography of the problem, we mention: I. Rizescu, *Contribuţii la studiul calcului lingvistic,* Bucureşti, 1958; I. Ştefan, *Calcul lingvistic,* in „Limba română", XII, 1963, nr. 4, p. 335-346; C. Apreotesei, *Unele probleme ale calcului lingvistic,* in „Studii şi cercetări lingvistice", XXXI, 1980, nr. 4, p. 349-352; Th. Hristea, *Calcul lingvistic ca procedeu de îmbogăţire a vocabularului,* in *Sinteze de limba română,* p. 100-121; idem*, Tipuri de calc lingvistic,* in „Studii şi cercetări lingvistice", XVIII, 1967, nr. 5, p. 507-527; idem*, Le calque de structure dans la langue roumaine,*in *revue Roumaine de Linguistique,* XII, 1967, nr. 4, p. 279-288; idem*, Tipuri de calc în limba română,* in "Limbă şi literatură", III-IV, 1997, p. 10-29; S. Vaimberg, *Contribuţii la problema calcului lingvistic* (the summary of the doctoral dissertation), Bucureşti, 1970; idem*, Consideraţii asupra tipologiei calcului lingvistic,* in „Analele Universităţii din Bucureşti"*,* seria filologie, XX, 1971, p. 91-100; *idem, Calque and Borrowing,* in „Revue roumain de linguistique"*,* XX, 1975, nr. 4, p. 435-437, Maria Stanciu-Istrate, *Calcul lingvistic în limba română (cu specială referire la scrieri beletristice din secolul al XIX-lea),* Bucureşti, 2006.

[3] V. Th. Hristea, *Tipuri de calc în limba română*, p. 10-29; Maria Stanciu-Istrate, *op. cit.,* p. 61-140.

[4] For the loan-translations in belletristic texts elaborated in old Romanian, see Maria Stanciu-Istrate, *op. cit.,* p. 281-308.

[5]Among these studies, we mention only the most pertinent ones: N. A. Ursu, Ursu, *Formarea terminologiei ştiinţifice româneşti*, Bucureşti, 1962 and Gh. Chivu, *Stilul celor mai vechi texte ştiinţifice româneşti (1640-1780),* I, in „Limba română", XXIX, 1980, nr. 2; II. *Stilul textelor lingvistice,* XXX, 1981, nr. 1; III. *Stilul textelor matematice,* XXX, 1981, nr. 2; IV. *Stilul textelor medicale,* XXX, 1981, nr. 3; V. *Stilul textelor filozofice,* XXX, 1981, nr. 5.

[6] Valuable information on the scientific terminology used in this text is offered by N. A. Ursu, *op. cit.,* p. 19-21, 78-79.



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Amphiloch, the bishop of Hotin, resorted to lexical loan-translations in order to render various scientific notions.

**1**. *Gramatica de la învățătura fizicii*, written around 1790 (N. A. Ursu, 1962:19), is the only text of science popularization that was not published in the author's life, remaining as a manuscript for almost 200 years. The writing is known to have two copies; one is kept at the Library of the Romanian Academy, the other at the Library of the Academy of Kiev. The latter copy, entitled *Gramatica de la învățătura fizicii, scoasă de pre limba italienească pre limba moldovenească, întru care să cuprinde tot ceea ce omul voieşte a şti şi a învăța în cer şi pre pământ din lucrurile cele mai cunoscute şi mai trebuincioase. Anul 1796, april 10*, had the chance of being edited by two researchers from the Republic of Moldova with Russian characters. The paper puts into circulation, in its four parts, incipient specialty terminologies in several fields: astronomy, geography, botany, zoology, anatomy, physics and chemistry. A translation and adaptation of an Italian treaty of natural science, the writing had a broad circulation in that time, being used as a textbook in the Princely Academy in Iaşi, where the study of certain disciplines was about to be reorganized on modern basis by the metropolitan bishop Iacov Stamati; *Gramatica fizicii,* as well as the other three textbooks published by the author in 1795 in Iaşi, had an important role in disseminating culture among the masses and in the constitution of the Romanian scientific terminology (see Rodica Şuiu, 1979:33-34).

**2**. It was observed that the lexical borrowings used in this text are numerous[1]. However, a minute analysis of the lexicon also reveals the high weight of lexical loan-translations, especially in certain specialized languages. The relative reticence towards lexical borrowings displayed by the scholar materializes in „încercări de transpunere interpretativă a împrumutului neologic prin echivalente aproximative căutate în lexicul tradițional, prin traducere, cuvânt vechi derivat sau prin calc" [attempts of interpretative transposing of the lexical borrowing through approximate equivalents taken from the common, old lexicon, through translation, old term or loan-translation] (our translation) (Doina David, 1986:28). The consequence of this manifestation is the high number of lexical loan-translation of morphologic and semantic structure. The lexicon used is characterized mainly by semantic extensions of some terms from the common stock of the language which presents certain similarities with the neologic scientific ones, even if they do not always share a common meaning.

In order to observe the way in which the author uses and integrates the loan-translation in exposing specialty knowledge, we offer several examples: „*Tărie* este apropiere a materiei prin mijlocire de care un trup sprijineşte pre altile toate că-l strâng den toate părțile poprindu-le întrarea în locul carele el cuprinde" (90); „*Râdicare* să zice şi elasticita" (103); „Vapori ori ceți sânt o mulțime de *părticeli* apoase osebite de la fața apei şi de pe a pământului umed" (131); „Un zgârciu lat este netid şi vârtos, dar mai moale decât un os. Nu are găvănare, ori deşchideri înplute cu măduhă şi nu esti acoperit

[1] N. A. Ursu, *op. cit.,* p. 139-300 passim; Liliana Soare, *„Gramatica de la învățătura fizicii". Remarks on anatomical terminology*, in "Analele Universității din Craiova", seria Ştiințe filologice, Lingvistică, anul XXXIII, nr. 1-2, 2011, p. 474-480; idem, *Remarks on physics terminology in Amphiloch of Hotin's* Gramatica fizicii**,** in "Language and Literature. European Landmarks of Identity", Editura Universității, Pitesti, 2011, p. 135-138; idem, Gramatica de la învățătura fizicii. *Considerații asupra terminologiei astronomice*, in Gheorghe Chivu, Alexandru Gafton, Adina Chirilă (eds.), *Filologie şi bibliologie. Studii,* Timişoara, Editura Universității de Vest, 2011, p. 343-349.



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ca osul cu vreo membrană, ca să-l facă *simțitoriu*" (176); „Folosul cel mai dintâi al inimii în trupul omenesc este că acest muscul minunat are doao clătiri, una să chiamă *scurtare*, alta să chiamă *alegire ori osebire*. *Scurtarea* să face atunce când viţişoarele să trag şi să strâng la adâncimea inimii. Iar *alegire* să face atunce când acest muscul au stătut de-a lucra şi atunce aceli viţişoare să întorc întru a lor stare şi întru a lor chipuri fireşti" (181); „*Obiceiul* stomahului este că slujeşte pentru *mistuire* adică a disface şi a despărți bucatile în părticeli foarte mici" (182); „Dinapoie de acest umore (albicios) în fundul ochiului să găseşte o membrană subțire şi gingaşe, numită *popreală*, asupra căreia sânt întinse viţişoarele de la măduha nervilor de la urechi, care vin de la crier" (184); „Dinapoia acestii membrane au pieli este o mare *dişertare*, la care cu această membrană au piele fiind acoperită, se numeşte timpanu ori doba urechii, pentru ce să asamănă cu o dobă" (185) etc.

**3**. Due to the structure of this complex popularization text, we present the lexical loan-translation excerpted depending on the specialized lexicon they belong to, with the hope that our research will arise the interest of specialists in terminology, lexicology and lexicography.

**3.1. The anatomical terminology** is characterized by a high amount of loan-translations. The most frequent are the loan-translations of semantic structure: *alegire, osebire* „diastolă" [diastole] (181, after Fr. *diastole,* Ngr. *διαστολή*), *beşicuțe* „alveole" [alveolus] (180, after Fr. *alvéole*), *cale* (*auzitoare*) „canal" (auditiv) [auditory channel] (185, after Lat. *canalis*, Fr. *canal*), *cămeşă* „membrană" [membrane] (183, Lat. It., *membrana,* Fr. *membrane*), *clătirea* (*sângelui*) „circulație" (sanguină) [sanguine circulation] (187, after Lat. *circulatio*, Fr. *circulation*), *dişertare* „cavitate" [cavity] (185, *dişerturi*, 185, after Lat. *cavitas,* Fr. *cavité*), *mistuire* „digestie" [digestion] (182, after Lat. *digestio,* Fr. *digestion*), *mustul* (*pancreaticu*) „suc" (pancreatic) [pancreatic juice] (186, after Lat. *succus*, It. *succo*, Fr. *suc*), *obicei* „funcție a unui organ" [organ function] (180, after Lat. *functio* „executare, săvârşire"), *pântece* „uter" [uterus] (189, after Lat. *uterus*, Fr. *utérus*), *popreală* „retină" [retina] (184, after Lat. *retinaculum* „legătură care ține pe loc, funie", Fr. *rétine*), *scurtare* „sistolă" [systole] (181, after Ngr. *συστολή,* Fr. *systole*), *strânsoare* „presiune" [pressure] (165, 180, after Lat. *pressio,* Fr. *pression*), *țevia* (*fierii*) „duct" (biliar) [bile duct] (182, after Lat. *ductus*), (*vâna*) *deşartă* „(vena) cavă" [vena cava] (179, after Lat. *cavus*, Fr. *cave*), *~ poartă* „vena portă" [portal vein] (179, after Fr. *porte*), *vintricel* „ventricul" [ventricle] (181, after Lat. *ventriculus,* It. *ventricolo,* Fr. *ventricule*).

The loan-translation of morphological structure are less numerous: *ajun* „jejun, parte a intestinului subțire" [jejunum] (186, after Lat. *jejunum,* Fr. *jéjunum*), *auzitoriu* „auditiv" [auditory] (185, after Fr. *auditif*), (nerv) *mirositoriu* „olfactiv" [olfactory nerve] (185, after Lat. *olfactorius,* It. *olfattorio,* Fr. *olfactif*), *simțitoriu* „sensibil" [sensitive] (176, after Lat. *sensibilis*, *-e*, It. *sensibile*, Fr. *sensible*), *supstare* „substanță" [substance] (76, 177, after Lat. *substantia,* It. *sostanza,* Fr. *substance*), (*vâna*) *suitoare* „vena superioară" [upper vein] (179, after Lat. *superior*, Fr. *supérieur*).

**3.2. The physics terminology** also presents numerous loan-translation of semantic structure: *apropiere* „proprietate" [property] (91, after Lat. *proprietas*, It. *proprietà*, Fr. *propriété*), *arătare* „demonstrație" [demonstration] (96, after Lat. *demonstratio,* Fr. *démonstration*, Ngr. *ἀπόδειζις*), *(cămări) întunecate* „cameră obscură" [camera obscura] (83, after Lat. *obscurus*, Fr. *obscur*), *curgătoriu* „fluid" [fluid] (102, after Lat. *fluidus,* It. *fluido,* Fr. *fluide*), *curgire* „fluiditate" [fluidity] (101, after Lat. *fluiditas*, Fr. *fluidité*), *cutremura* „vibra" [viber] (93, after Lat. *vibrare*, Fr. *vibrer*), *deşert* „vid" [vacuum] (105, *dişert,* 93, after Lat. *viduus*, Fr. *vide*), *fânare* (*maghice*)



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„lanternă magică”[1] [magic lantern] (83, after Lat., It. *lanterna*, Fr. *lanterne*), *frângerea au îndoirea* „refracție” [refraction] (95, after Lat. *refractio,* It. *rifrazione,* Fr. *réfraction*), *greutate* „gravitație” [gravity] (97, after Lat. *gravitas,* It. *gravitazione,* Fr. *gravitation*), *grăunțe* „molecule” [molecule] (165, after Lat., It. *molecula*, Fr. *molécule*), *greutatea* (*aerii*) „presiune” (atmosferică) [atmospheric pressure] (124, after Lat. *pressio*, Fr. *pression*), *îndreptare* „direcție” [direction] (91, after Lat. *directio,* Fr. *direction*), *întinsoare* „dimensiune” [dimension] (87, after Lat. *dimensio*, Fr. *dimension*), *întunecare, umbrire* „opacitate” [opacity] (100, after It. *opacità*, Fr. *opacité*), *învârtoşare* „solidificare” [solidification] (68, after Fr. *solidification*), *lărgime* „distanță” [distance] (91, after Lat. *distancia*, Fr. *distance*), *moliciune* „maleabilitate” [malleability] (68, after Fr. *malléabilité*), *odihnă* „repaus” [repose] (91, after Lat. *repausum*), (*oglinde*) *netede* „plane” [flat, plane] (83, after Lat. *planus*, Fr. *plan*), *întoarse* „convexe” [convex] (83, after Lat. *convexus*, Fr. *convexe*), *adâncate* „concave” [concave] (83, after Lat. *concavus*, Fr. *concave*), *rătunde* (*împregiur*) „sferice” [spherical mirrors] (83, after Lat. *sphaericus*, It. *sferico*, Fr. *sphérique*), *privederea* „transparență” [transparency] (92), *priveditoare* „transparente” [transparent] (100, after It. *trasparenza*, Fr. *transparence*), *orânduiala* „principiu” [principle] (77, after Lat. *principium,* It. *principio*, Fr. *principe*), *părticeli* „particule” [particles] (93, 131, after Lat. *particula*, Fr. *particule*), *râdicare* „elasticitate” [elasticity] (103, after It. *elasticità*, Lat. *elasticitas*, Fr. *èlasticitè*), *repejune* „viteză” [speed] (91, after It. *velocità* or *rapidità,* Fr. *vitesse*), *sfărâmare* “disipare” [dissipation] (87, after Fr. *dissiper*), *tărie* „soliditate” [solidity] (87, after Lat. *soliditas,* It. *soliditá*), *tragire* „atracție” [attraction] (97, after Lat. *attractio*, Fr. *attraction*).

The loan-translations of morphological structure are less numerous: *asprime* „asperitate” [asperity] (68, after Lat. *asper, -itatis*, cf. Fr. *aspérité*), *desime* „densitate” [density] (92, after Lat. *densitas,* Fr. *densité*), *despărțire* „divizibilitate” [divisibility] (87, after It. *divisibilità*, Fr. *divisibilité*), *rărime* „rarefiere” [rarefaction] (100, after Fr. *raréfier*).

**3.3. Geographical and astronomic terminologies** contain just a few loan-translations. As regards the geographical terminology, we have identified the following loan-translations of a semantic, respectively morphological structure: *arătare* „fenomen atmosferic” [atmospheric phenomenon] (77, after Lat. *phaenomenum,* Fr. *phénoméne*), *cap* „promontoriu” [promontory] (140, after Lat. *promontorium*, Fr. *promontoire*); *lăţime* „latitudine” [latitude] (122, after Lat. *latitudo,* It. *latitudine,* Fr. *latitude*), *lungime* „longitudine” [longitude] (122, after Lat. *longitudo,* It. *longitudine,* Fr. *longitude*). The examination of astronomic terminology brought about a single loan-translation of a semantic structure: *aşezământ* „sistem” [system] (105, after Lat. *systema*, It. *sistema*, Fr. *système*, Rus. *системa*, Ngr. *σύστημα*).

**4**. Examining the reasons the scholar resorts to loan-translations in rendering various scientific concepts, it can be observed that they are identical with and specific to all scientific texts elaborated at the end of the 18th century and the beginning of the 19th century[2]. In this period, when the scholars permanently affirm their conceptions regarding the necessity of neologisms, the loan-translations appear as a natural alternative to the lexical borrowing. The loan-translations met the internal necessity of enriching the literary language by using the autochthonous linguistic material. The presence of loan-translations can also be explained by the imitation of the models

[1] The first projector of static images.
[2] see Maria Stanciu-Istrate, *op. cit.,* p. 51-58.



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offered by the translations the scholars make from various languages of culture (Italian, in our case); however, this phenomenon does not represent a state of servitude to the model, but it can be interpreted as a consequence of a cultural attitude which aimed at correlating the new terms with the European neologic terminology.

Besides, one must not neglect the cautious attitude of scholars concerning the lexical borrowings out of the express desire to provide the accessibility and popularization of the new notions. In the process of constitution of Romanian scientific terminology, at the end of the 18th century and the beginning of the 19th century, the loan-translation represents a favorite mechanism for the translators and not just an alternative to lexical borrowings. N. A. Ursu grasps this phenomenon very well: „...pentru nivelul cultural scăzut pe care-l aveau românii în jurul anului 1800, calcurile lingvistice constituiau, într-o anumită măsură, o necesitate. Dacă în locul lor traducătorii diferitelor scrieri cu conținut științific ar fi folosit termenii străini corespunzători, nu s-ar mai fi atins scopul urmărit de ei: popularizarea cunoștințelor respective" […for the low cultural level the Romanian people had around 1800, the loan-translations represented, to a certain extent, a necessity. If the translators of the various scientific texts had used the corresponding foreign terms, the aim they pursued, i.e. the popularization of the new terms, would not have been attained] (our translation) (N. A. Ursu, *op. cit.*: 117). Exemplifying, the author shows that terms like: *acrime, curgere, grăunțos, mumesc, soresc, stoarcere* were easier to understand by those who could not speak the donor foreign languages: *acid, curent, granulos, matern, solar, secreție* (N. A. Ursu, *ibidem*). In other words, the terms created by loan-translation have the advantage of seeming Romanian, although their internal form copies a foreign pattern, and of being easily decoded by the readers with a low level of culture and instruction.

It also must not be neglected the stage in which Romanian found itself at the end of the 18th century: a young language of culture, without many possibilities of integrating the new and numerous terms, of various origins, thus forced to appeal to the internal mechanism of lexical enrichment. The resort to copying a new term is also a consequence of scholars' cult, erudite orientation. The loan-translations played an important role in the process of neologism penetration, allowing for their adaptation and integration in less aggressive forms[1], by appealing to their internal form, i.e. the transposing of the foreign pattern with the specific means of the Romanian language.

**5**. The application of the Enlightenment principle according to which literary language, as a vehicle of culture, should be adapted in order to meet the needs of the readers with a lower cultural level is relevant for the configuration of the scientific terminology used by bishop Amphiloch. There are numerous cases in which the lexical borrowing is doubled by loan-translation, as well as numerous situations in which the scholar, due to certain reasons (besides the ones mentioned above, we can add his uncertainty as regards the pattern of the phonetic and morphological adaptation used) prefers the loan-translation. Considering the cultural formation of this erudite scholar, who knew several foreign languages (Latin, Neogreek, Italian, Russian, Slavonic), it can be observed that the models for the loan-translations used originate in these languages, adding that the Latin-Romance model holds the highest weight. Yet, none of the loan-translations used by Amphiloch in this text imposed itself in the literary language. In the moment of their appearance, they certainly represented a rapid and handy solution for

[1] L. Deroy considers that loan-translations have the advantage of not hurting the linguistic feeling of speakers, giving them the impression that the new terms are autochthonous (*L'emprunt linquistique,* apud Maria Stanciu-Istrate, *op. cit.,* p. 286).



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naming and disseminating the new concepts. However, because of their artificial character and internationalization of the scientific lexicon, the loan-translations used in this did not survived in the literary language with their scientific meaning.

***Source***

Amfilohie HOTINIUL, *Gramatica de la învățătura fizicii* (1796), responsible editor L. S. DERGACIOVA, preface by A. I. BABII and Şt. LUPAN, glossary by Şt. LUPAN, notes by A. I. BABII, Chişinău, Ştiința Press, 1990.

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