REMARKS ON PHYSICS TERMINOLOGY IN AMPHILOCH OF HOTIN'S "GRAMATICA FIZICII"[1]

Abstract: *The present paper deals with a text of science popularization elaborated by Amphiloch, the bishop of Hotin, in 1796. The text, a translation and adaptation of an Italian treaty of natural sciences, highly contributed to the constitution of the Romanian scientific vocabulary, disseminating authentic terminologies in various fields of science. The study represents an analysis of the specialized terminology in the field of physics, due to the fact that here appear, for the first time in specialty literature, basic notions in this field. The physics terminology is rich and has a heterogeneous character, being made up of lexical borrowings, loan-translations, old, common terms and syntagms.*

Keywords: *common terms, lexical borrowings, loan-translations.*

1. Amphiloch of Hotin (app. 1735 - 1800), is one of the most important scholars whose activity is representative for the Moldavian Enlightenment at the end of the 18th century. He was an assiduous writer, translating and adapting didactic books, thus highly contributing to the modernization of the educational system of the period. His manuscript texts circulated long before they were published; enjoying a broad circulation, his writings had an important role in disseminating culture among the masses[2]. *Gramatica de la învăţătura fizicii* [The Grammar of Learning Physics], a text elaborated in 1796, is his sole writing that was not published; it was edited no sooner than 1990, almost 200 years later, by two researchers from the Republic of Moldova with Russian characters. The erudite clergyman (he spoke Slavonic, Russian, Latin, Greek and Italian) is one of the first Romanian scholars preoccupied with the issue of synchronizing the Romanian culture with the European one and of creating a scientific language. His text, a translation and adaptation of an Italian treaty of natural sciences, is of a great importance in the process of Romanian scientific vocabulary constitution, disseminating incipient authentic terminologies in several fields: geography, astronomy, anatomy, botany, zoology, chemistry and physics[3].

2. As it was observed (Ursu, N. A., 1962: 78), *Gramatica fizicii* is the most important scientific text elaborated at the end of the 18th century, which disseminates numerous terms in the field of physics. The first part of the writing treats some problems of physics; here appear, for the first time in specialty literature, basic notions in this field. "Partea cea dintâi de la grammatica fizicii" is made up of 11 chapters: "Cap. 1. Pentru somatologhie şi pentru apropierile de la materie. Pentru feliurile alese a trupurilor fireşti, cu legile de la fire. Pentru firea cea de obşte şi pentru apropierile trupurilor fireşti. Cap. 2. Pentru întinsoare, pentru mărime şi pentru măsurile trupurilor. Cap. 3. Pentru despărţirea materiei şi pentru a sa nesăvârşire şi pentru cea minunată dispărţire de multi feliuri de trupuri. Cap. 4. Pentru tărie şi pentru chipurile trupurilor. Cap. 5. Pentru clătirea materiei şi pentru firea clătirii şi odihna. Cap. 6. Pentru lumină. Cap. 7. Pentru văpselile luminii. Cap. 8. Pentru sunet. Cap. 9. Pentru greutate şi pentru uşurinţă. Pentru tragire. Cap. 10. Pentru privideri şi pentru umbrire au întunecare.

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[2] For Amphiloch's activity, see *Dicţionarul literaturii române de la origini până la 1900*, Bucureşti, 1979, p. 33-34; *Istoria învăţământului din România* (responsible editor Ştefan Pascu), vol. I, Bucureşti, 1983, p. 374-376.

[3] Valuable information regarding the scientific terminology used in this text is offered by N. A. Ursu, in *Formarea terminologiei ştiinţifice româneşti*, Bucureşti, 1962, p. 19-21, 78-79.

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Pentru desime şi pentru învârtoşare şi moliciune şi asprime şi frăgezime şi pentru plecarea au îndoirea trupurilor. Cap. 11. Pentru aşezământ şi neaşezământ. Pentru căldură şi frig, pentru umezire şi pentru uscăciune, pentru râdicări şi mirosuri, pentru gusturile trupurilor" (68-69).

3. The specialized vocabulary used in this text is rich, being made up of an **erudite, neologic component** and an **old, common one**. **The neologic terminology** holds a significant weight quantitatively as well as qualitatively, with terms belonging to the followings sub-areas: **physics disciplines**: *dioptichi* "dioptrică" [dioptrics] (83 < Ngr. *διοπτρική*), *catroptica* "catoptrică" [catoptrics] (83 < It. *cattotrica*, Fr. *catoptrique,* cf. Ngr. *κάτοπτρον* şi *κατοπτρικός*), *fizică* [physics] (78 < It. *fisica*, Lat. *physicus*, Fr. *physique*), *idraulica* [hydraulics] (165 < It. *idraulica*), *idrografie* [hydrography] (75, 164 < It. *idrografia*, cf. Ngr. *ύδρογραφία*), *idrostatică* [hydrostatics] (164 < It. *idrostatica*, Lat. *hydrostatica,* cf. Ngr. *ύδροστατική*), *optica* [optics] (136, *otica*, 151 < Lat. *optice*, Fr. *optique*, It. *ottica*), *statică* [statics] (129 < It. *statico*, Fr. *statique*, cf. Ngr. *στατικός*); **specific instruments and devices**: *animoscopeo* "anemoscop" [anemoscope] (81 < It. *anemoscopio*), *areometrio* "areometru" [areometer] (81, *areometreo*, 82 < It. *areometro*, cf. Ngr. *άραιόμετρον*), *barometrio* [barometer] (80 < It. *barometro,* Lat. *barometrum*, cf. Ngr. *βαρόμετρον*), *cilindre* [cylinder] (83 < It. *cilindro*, Lat. *cylindrus*), *cumpăna idrostatichi* [hydrostatic balance] (82 < It. *idrostatico*, Fr. *hydrostatique*), *eolipilo*[1] [aeolipyle] (81 < Lat. *aeolipila*, Fr. *éolypile*), *machina pnevmatică* [pneumatic machine] (83 < Lat. *pneumaticus,* It. *pneumatico,* cf. Ngr. *πνευματικός*), *microscopeo* [microscope] (80, *microscopeu*, 90 < It. *microscopio,* Lat. *microscopium,* cf. Ngr. *μικροσκόπιον*), *recipienti* [recipient] (83, *recipiente*, 84 < It. *recipiente*), *termometrio* [thermometer] (82, *termimetrio*, 82 < It. *termometro*, Lat. *thermometrum,* cf. Ngr. *θερμόμετρον*), *tub* [tube] (99 < Lat. *tubus*, It. *tubo*, Fr. *tube*), *tubu torrecialiano* "tubul lui Torricelli"[2] [Torricelli's tube] (80), **objects' properties**: *elasticita* "elasticitate" [elasticity] (103 < It. *elasticità*), *eletricita* "electricitate" [electricity] (97 < It. *elettricità*), *eletricu* [electric] (99, *eletrice* < It. *elettrico*), *optricu* "optic" [optic] (79 < Lat. *opticus,* Fr. *optique*, cf. Ngr. *οπτικός*), *porosita* "porozitate" [porosity] (124 < It. *porosità*), *soma* "masă" [mass] (92 < It. *somma*); **physics laws and phenomena**: *iho* "ecou" [echo] (96 < Ngr. *ήχώ*), (*legile*) *idrauliche* [hydraulic laws] (164 < Fr. *hydraulique*, It. *idraulico*, cf. Lat. *hydraulicus*), *idrostatice* [hydrostatic] (165, *idrostatiche,* 164 < It. *idrostatico,* Fr. *hydrostatique*), *sunet* [sound] (96 < Lat. *sonitus*), *trumba* "trombă" [water-spout] (83 < It. *tromba*, Fr. *trombe*); **physics concepts**: *atomi* [atom] (86 < Lat. *atomus,* It. *atomo*, Fr. *atome*, cf. Ngr. *ἄτομος*), *element* [element] (83, *elementi,* 74 < It. *elemento*, Lat. *elementum*, Fr. *élément*), *materie* [matter] (76 < Lat., It. *materia*, Rus. *материя*), *porii* [pore] (99 < Lat. *porus,* It. *poro*, Fr. *pore,* cf. Ngr. *πόρος*).

As regards the origin of the lexical borrowings, they reflect the Latin-Romance: *atomi, catroptica, element, fizică, barometrio, cilindre, materia, microscopeo, optricu, porii, statică, termometrio, tub*; Italian (some terms even conserving the graphical form of the etymon): *animoscopeo*, *areometrio*, *elasticita*, *eletricita*, *eletricu, idraulica, idrografie, porosita*, *recipienti, soma* and Neogreek provenience: *dioptichi, iho*.

[1] The first device which can be assimilated to a steam turbine, invented by Heron of Alexandria (app. 10-70 A.D.), a Greek mathematician, engineer and encyclopaedist.
[2] The first mercury barometer.

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Lexical loan-translations are numerous: *apropiere* "proprietate" [property] (91), *arătare* "demonstrație" [demonstration] (96), *asprime* "asperitate" [asperity] (68), *aşezământ* "sistem" [system] (101), *atocmare* "comparație" [comparison] (98), *cămări întunecate* "cameră obscură" [camera obscura] (83), *cutremura* "vibra" [vibrate] (93), *desime* "densitate" [density] (92), *despărțire* "divizibilitate" [divisibility] (87), *dişert* "vid" [vacuum] (93), *fânare maghice* "lanternă magică"[1] [magic lantern] (83), *grăunțe* "molecule" [molecule] (165), *greutate* "gravitație" [gravity] (97), *greutatea aerii* "presiune atmosferică" [atmospheric pressure] (124), *îndreptare* "direcție" [direction] (91), *întinsoare* "dimensiune" [dimension] (87), *întunecare, umbrire* "opacitate" [opacity] (100), *învârtoşare* "solidificare" [solidification] (68), *lărgime* "distanță'" [distance] (91), *moliciune* "maleabilitate" [flexibility] (68), *odihnă* "repaus" [repose] (91), (oglinde) *netede* "plane" [flat], *întoarse* "convexe" [convex], *adâncate* "concave" [concave], *rătunde împregiur* "sferice" [spherical] mirrors (83), *pornire asemănătoare* "viteză egală" [equal speed] (91), *pornire slobodă* "viteză liberă" [free speed] (91), *privederea* "transparență" [transparency] (92), *priveditoare* "transparente" [transparent] (100), *orânduiala* "principiu" [principle] (77), *părticeli* "molecule" [molecule] (93), *rărime* "rarefiere" [rarefaction] (100), *sfărâmare* "disipare" [dissipation] (87), *soma clătirii* "masa de mişcare (inerțială)" [inertial mass] (91), *strânsoare* "presiune" [pressure] (165), *suptstare* "substanță" [substance] (76), *tărie* "soliditate" [solidity] (87), *tragire* "atracție" [attraction] (97).

Old, common terms, belonging to the current vocabulary of Romanian **and expressions** are not so well represented as compared to the previous examined lexical categories: *căldura* [heat] (93), *clătire* "mişcare" [motion] (87), *curgire* [flowing] (101), *frecare* [friction] (93), *grabă, repejune, pornire* "viteză" [speed] (91), *grosime* "lățime" [width] (86), *lărgime* "înălțime" [height] (86), *lumină* [light] (92), *lungime* [length] (86), *mărime* [size] (68), *osie* "axă" [axis] (83), *prefacere* "transformare" [transformation] (94), *stâlp* (de argint viu) "coloană" (de mercur) [column] (80), *trup* "corp" [body] (80), *udeală* "lichid" [liquid] (165), *văpseală* "culoare" [color] (95); *batirea luminii* "reflecție" [reflection] (94), *frângirea razelor* (94), *frângerea luminii* "refracție" [refraction] (137), *stecli în chipul lintei* "lentilă" [lens] (83).

The glossing of the new terms, as a linguistic mechanism which consists in establishing a relation of equivalence between two terms, is constant in the text examined. From a graphical point of view, the glosses are integrated in the text: *areometreo cel mai obicinuit ori cumpănitoriul apei* (82), *atomi ori trupurile mici de materie* (86), *figură au chip* (87), *frângeri au îndoiri* "refracție" (95), *graba ori repejune* "viteză" (91), *grămada ori soma de la lărgime* (88), *iho adică întoarcere* (96), *materie ori suptstare* (76), *recipienti ori primitoriu* (83), *repejune ori pornire* „viteză" (91), *rîdicare să zice şi elasticita* (103), *trupului ori a materii* (90), *tub ori țevă* (80), *văpsală adică semn* "culoare" (95).

The scholar's attempt at denominating a new reality by terms current in the language of the period resulted in using **synonymic series**, which are mechanisms representative for the beginning of the scientific language: *areometreo - cumpănitoriul apei*, *atomi - trupurile mici de materie*, *figură - chip*, *frângeri - îndoiri*, *graba - repejune - pornire* „viteză", *iho - întoarcere*, *materie – trup - suptstare*, *părticeli –grăunțe*, *recipienti - primitoriu*, *rîdicare – elasticita,soma – grămada, tub -țevă*, *văpsală – semn*.

4. *Gramatica de la învățătura fizicii* is a very important text in the process of scientific language constitution, in general, and of the physics terminology in particular.

[1] The first projector of static images.

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The specific terms appear in a special chapter dedicated to physics; they are no longer accidental occurrences in medical or geographical texts as before. The physics terminology is made up of a neologic, cult component and an old, common one. Lexical borrowings hold the highest weight, being used to denominate physics disciplines, instruments or basic concepts. They are borrowed mainly from Italian, Greek or reflect a Latin-Romance etymology. Lexical loan-translations are very numerous, denoting physics concepts and properties. The high weight of loan-translations can be explained by both the indigence of the literary language of the period and by the scholar's objective to provide the accessibility of the language, as the text was elaborated and used for didactic reasons. Old terms and expressions are not well represented as compared to lexical borrowings and loan-translations. The presence of synonymic series is clear proof of a scientific language in its beginnings.

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