

THE GENESIS OF THE ENGINEER IN THE ROMANIAN CULTURE. THE ASACHI MODEL

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Abstract. The modern industrial revolution promoted a new intellectual profession: the engineer as a project creator. Thus industrialization which determined in its turn the modernization of our society institutionalized the engineer as well. At the beginning of the 19th century, an age in which the need for social economical need for engineers appeared the European world was changing and the Romanian society was launching its first projects, trying to synchronize with the Western World. Gheorghe Asachi, the most educated Romanian at the time had both the knowledge and the idealism to launch an important cultural challenge: the organization of engineering education in the Romanian language. The cultural project was therefore doubled by the national one, the latter one competing for the emancipation of the Romanian language from under the Greek influence. Guided by this symbol of national rebirth, the first modern project of university education was launched in Iasi, in 1813, being dedicated to teaching engineers. Thus the Romanian culture showed its ability to formulate projects and generate modernity.

The modern Romanian culture defined its programme during the transition at the end of the 18th century and the beginning of the 19th. In the Romanian society of the time we meet social spaces and ‘multilevelled’ personalities¹, beings with two, three and even five strata, according to C. Noica². The cultural effort focused on synchronizing with Europe, the result being the appearance of a heroic and messianic culture. M. Eliade stated that very few people “had to do everything very fast. But how frightening was their will of creation! The dominant spiritual gesture of the Romanian 19th century is one of Renaissance: the creation of big models, gigantic plans, the conscience of human dignity, the Romanian messianic behaviour.”³ A few generations contributed to this movement but also isolated personalities that transmitted the message to well-determined groups, conscious of their mission⁴. The Romanian culture has in its process of modern enlightenment a precise mission: that of creating change and of strengthening it, thus becoming an essential factor of renewal in history.

Our school becomes the first national institution of culture that takes on the mission of making changes, closely followed by the press and the theatre. In an age of transition in which it became important, the necessary forces to finalize all the projects did not exist. A century passed from the Phanariots’ modest attempts at

¹ I. Bădescu, *Sincronism European și cultură critică românească*, București, 1984, p. 181.

² C. Noica, *Sentimentul românesc al ființei*, București, 1978, p. 42.

³ M. Eliade, *Introducere la B.P. Hasdeu, Scrieri literare, morale și politice*, vol. I, București, 1937, p. XXXVI.

⁴ Z. Konstantinovic, *Le conditionnement social des structures...*, in *Synthesis*, I, 1974, p. 131.

creating cultural modernization to the finalization of this process in the age of the national state.

Dire economical needs required engineering education. The technical support was obviously too scarce, but idealism tried to make up for it. A Romanian school for engineers had neither the necessary personalities nor the full and unconditional support of the state as the French one did. Even if the school reforms in the 18th century ensured the state protection for the Romanian schools, along with the Greek ones, the Romanians being allowed to learn in their own language, only a Romanian institution could ensure viability to the national school and not an offer of the Phanariot cosmopolitan power⁵. The setting up of Romanian science education represented a clear demonstration of the ability of the Romanian language to modernize and of the new national forces to impose their will. In 1813, by means of the work of a few men of action – Veniamin Costachi, Gh. Asachi and Mihail Sturdza – so different in terms of their training and social extraction but so united by the finalization of a national act, the Romanian engineering education was born for pragmatic reasons, in Iasi.

If the posterity of Gh. Asachi, the writer is insignificant, his work being crushed by the critics in spite of its “inner beauty”⁶ and of Eugen Lovinescu’s attempt to make us notice its literary qualities⁷, the virtues of his cultural and institutional activities of the scholar were unanimously praised. His undeniable merits of promoter, architect of fundamental cultural institutions of modernization were never questioned. Moldova’s Heliade, as people called him, Gh Asachi contributed more than any of his contemporaries to the work of cultural modernization⁸.

At the beginning of the process of modernization, school became a sine qua non institution of national and social emancipation, either in Transylvania, where the Illuminist ideas took a firm national turn, or in Moldova or The Romanian Country (Tara Romaneasca), there the emancipation from under the Greek/Phanariot domination played the same role. Removing the Greek preponderance proved the fact that the Illuminist ideas had some effects. It was an age when ideas generated “an impulse for fact, starting to change the existent state in order to introduce the national idea.”⁹ Therefore education in the national language could not be postponed. The whole Romanian society entered a process of renewal and not only the noblemen, noticed N. Iorga: “This society headed for the West in a kind of instinctual impulse that it could not resist.”¹⁰

⁵ I. Popescu-Teiușan, *Studiu introductiv* from N. Iorga, *Istoria învățământului românesc*, București, 1971, p. VI.

⁶ E. Lovinescu, *Gh. Asachi. Viața și opera lui*, București, 1921, p. 105.

⁷ *Ibidem*, p. 108.

⁸ G. Ibrăileanu, *Amestec cu curente contradictorii: Gh. Asachi*, in *Spiritul critic în cultura românească*, Ed. Junimea, Iași, 1970, p. 60.

⁹ A.D. Xenopol, *Despre naționalism*, in *Arhiva*, nr. 6, Iași, 1908, p. 265.

¹⁰ N. Iorga, *Istoria literaturii românești. Introducere sintetică*, București, 1977, p. 162.

At Iasi the Princely School (Scoala Domneasca) continued its activity being reorganized by the same document of the Ruler Al Moruzi, as Academy of Philology and Science. In 1813 by the Ruler Scarlat Calimachi's document the Academy would be called the Superior Scientific Education.¹¹ The studies would take place in Romanian. In all these enterprises the Ruler was inspired and supported by a prominent personality of the time, the Metropolitan Bishop Veniamin Costachi.

But the victory of the Romanian language could not be complete if it did not focus on the area of higher education. Here the Greek professor dominated defending their position by asserting the superiority of the Greek language to the Romanian one. The Greek monopoly over the higher education area in Moldova had to be removed so as the cultural emancipation would be complete. If in the area of humanistic studies the Greek were difficult to surpass, having not only institutional privileges but also the advantage of a language of culture, they could not pretend to be superior in the technical and applicative area. This is why the engineering education is at the origin of higher education emancipation in the Romanian language. The idea belonged to one of the most cultivated people of the time, who is even now celebrated as founder of the engineering education in Romania, i.e. Gh. Asachi. It had to be a personality with the intellectual refinement, cultural knowledge, illuminated patriotism and tenacity of Gh. Asachi for the idea to be put into practice. The event of the foundation of the engineering education is worth being celebrated not only in the history of Romanian education but also in the larger area of national history, being one of the most significant accomplishments of the projects of Romanian modernization. His living creative intelligence, his vast knowledge, his fondness for national history and values are the main traits of one of the most important project creators in our modern history. Posterity was unfortunately cruel to Asachi. If an important Romanian educational institution such as the Politechnic University in Iasi did not have his name and a remarkable artistic creation such as his statue in Iasi did not remind us of him, the situation would worry us.

It was Asachi and many other people's destiny as promoters that did not leave behind any memorable "creations" but imposed themselves by serving an ideal without which their followers' work could not be imaginable. Gh. Asachi was not the only one with such a mission. By the document issued in 1775 the Romanian language was introduced to the St Sava Princely Academy in Bucarest along with Greek.¹² The Metropolitan Bishop Veniamin Costachi did the same thing in the Socola Seminary and "Trei Ierarhi" School that had been managed by Gh. Saulescu another important figure in Moldavian education since 1826.

¹¹ Gh. Asachi, *Adaos literaru*, Iași, 1861.

¹² Elena Grigoriu, *Istoricul Academiei Domnești de la Sf. Sava*, București, 1978, p. 43.

The process of cultural emancipation through the victory of the national languages against the classical ones in University education also happened in other European cultural spaces known for being role models. The national languages massively and decisively entered the European University curricula only in the Age of Enlightenment. It is the very case of the French that became the language of the courses in the Collège de France only on 1773, of the Italian that was used after 1800 or German at the University of Vienna¹³.

Taking into consideration the important role that Gh. Asachi played in the Romanian education in the first half of the 19th century we should add some facts that are useful for us to understand Asachi's personality and the impact of his actions in our history. His importance in his time is even greater in an age of great initiative of national regeneration. Born in Herta in 1788, the young Asachi went to Leopold, the capital of Austrian Gaul where he learnt Polish, Latin and German and in 1804, according to his autobiography, he got his Ph D along with his diplomas of engineer and architect.¹⁴ It seems that his memory played tricks on him, as researchers proved that this had taken place not in Leopold but later in Vienna.¹⁵ In 1805 at the University of Vienna he attended mathematical studies with Burg, the astronomer and also painting until 1809 when he continued his studies of Archeology and Italian in Rome.

When he returned to Iasi, having acquired vast knowledge, he noticed that the Ruler Scarlat Calimachi, who had surrounded himself by the Greek, despised "the Romanian feeling" and he saw himself "foreign in his own country". As expected, all the important positions had been taken by the Greek, except for one, that of "drawer of boundaries", which required "not only knowledge of the Romanian language but also the ability to decipher old documents" area in which the Greek were not competent. In 1813, using this pretext, he determines the Ruler to approve of a "class of engineers" and his appointment as "professor of the theoretical and practical science of the art of engineering".¹⁶ Thus, the many law suits in Moldova for drawing boundaries on monasteries', noblemen's and freeholders' lands that required boundary drawing engineers who had knowledge of the language of the old documents and old codes of laws convinced the Ruler to accept Asachi's proposition of lecturing on engineering and drawing boundaries, making it legal by the issue of the Ruler's Act of 15th November 1813.¹⁷

The Greek College "that considered this study more of an occupation did not prevent it, even if it took place in the same building while the perspectives that

¹³ Les quatre siècles du Collège de France, Paris, 1931.

¹⁴ Autobiografia lui Gh. Asachi, Iași, 1890, p. 7.

¹⁵ Șt. Bârsănescu, Gh. Asachi și studiile lui la Universitatea din Lvov, in *Iașul literar*, nr. 7/1957, p. 107–111; Gh. Levit, Gh. Asachi la Universitatea din Lvov, in *Limba și literatura moldovenească*, nr. 4/1959, Chișinău, p. 10–13.

¹⁶ *Ibidem*, p. 10.

¹⁷ Gh. Asachi, *Notiție biografică*, Iași, 1863, p. 8–9.

were opening this new type of career filled the classroom with a large number of noblemen's sons, (and even the Ruler's son)".¹⁸

Therefore, in 1814, in the very heart of the Greek School of the Princely Academy from the Metropolitan Church in Iasi, Gh. Asachi used for the first time the national language to teach theoretical Math, with practical applications in Geodesy and Architecture".¹⁹ The course took place at the Princely Academy according to the researchers²⁰ and not at the "Trei Ierarhi" as other people believed,²¹ for the simple reason that this latter school had been closed. Gh. Asachi taught here practically all the courses: Algebra, Trigonometry, Geometry, Mechanics, Hydraulics, Optics, Astronomy, Cosmology, Psychology and Ethics.

Even from the start, as expected, taking into consideration the principal Dimitrios Panaiotachi Gobdelas's sense of pride, professor Asachi had a conflict with him. As he himself confesses, the new principal asked him "to clean the school of the so called Moldavian Sciences" and "the Moldavian to be moved to his Moldavian school at Socola instead of drinking in the Greek Library, where he would not even understand the titles of the books; to teach the priests there if anyone can teach in the poor language of the natives and if a practical engineer that has no notion of Philosophy is capable of creating the necessary abstract terms."²² These unjust accusations were brought to a man who had studied at Lemberg, Viena and Rome, knew Polish, Russian, Latin, German, Italian, French and English (but not Modern Greek, which was the language of teaching at the Princely Academy in Iasi). In short, as Nicolae Iorga would later point out, at the time "there was no Romanian that would know as much as he did."²³

Asachi was creating a breach within the educational system of the time, proving at his students' graduation exam in June 1818 that "teaching higher level knowledge in Romanian is much easier than in Greek and the positive knowledge of engineering is more useful than the art of reciting the iambic meter and spondees of Asclepiades' lyrics rhythmically in Greek". This was the "first triumph of education in the national language"²⁴. On the 12th June 1818 the general graduation exam and the exhibition of the topographic plans of architecture and

¹⁸ Idem, *Quésition de l'instruction publique en Moldavie, Iassy, 1858*, p. 9.

¹⁹ Idem, *Relație istorică asupra școlilor naționale de la a lor restatornicire, 1828–1838*, in *Buletin, Foaie oficială*, nr. 55, 1838, p. 217–220.

²⁰ N.C. Enescu, *Unde a ținut Gh. Asachi cursul de inginerie*, in *Studii și articole de istorie*, II, 1957; A.D. Xenopol, C. Erbiceanu, *Serbarea școlară de la Iași, 1885*, p. 119; V.A. Urechia, *Istoria școalelor*, IV, București, 1901, p. 192; N. Iorga, *Istoria literaturii românești în veacul al XIX-lea*, București, 1907, p. 11–15; Idem, *Istoria învățământului românesc*, București, 1928, p. 162.

²¹ N.A. Bogdan, *Orașul Iași*, ed. a-II-a, 1913, p. 254; C. Andreescu, *Istoricul liceului național din Iași*, in *De la Academia Mihăileană la liceul național, Iași, 1936*, p. 9.

²² N. Iorga, *Istoria literaturii române în secolul al XVIII-lea*, București, 1901, p. 518–519.

²³ N. Iorga, Gh. Asachi, *Poezii, Vălenii de Munte, 1908*, p. II.

²⁴ Gh. Asachi, *Quésition...* p. 10.

earth works in the presence of school guardians (sponsors and protectors), clerics “of those from the political level of scientist foreigners.” In the official address of the guardians to the Ruler they mentioned that “many young sons of noblemen and other town people have been tested on the mentioned sciences of theoretical and practical Math, taught to them in Romanian.”²⁵

The machinations of D.P. Gobdelas, the Greek professor, finally determined the Ruler to deny Asachi’s position and course was cancelled.²⁶ The brave founder would not give up because, in his quality of member of the Public Instruction Guardianship for 20 years (since 1827) when he returned from his diplomatic mission in Viena where he had been sent by the first Romanian Ruler, Ionita Sandu Sturdza, his ideas and energy could be found in all the school projects.²⁷

In the history of the superior schools of the Principalities, the period of the Organic Regulations (1831–1845) was one of the fertile initiatives and accomplishments. As a man of his time, Gh. Asachi was the main promoter of the renewal of the Romanian society by means of school and education. A real factor of continuity, Asachi fulfilled his Illuminist ideal of emancipating the Romanian society by means of education. No one in that time had invested more energy, knowledge and devotion into the school subjects. The organization of the public education in the age of regulations is his work also. He makes his debut by drawing the document called Public Instruction Regulations in Moldova, in which he develops the principles of the Organic Regulations and the Statistics of the Public Education. According to the Organic Regulations, the Guardianship of Public Education was given administrative and executive attributions that later would be equivalent to those of the Ministry of Education.

Undeniably, the most important victory of the Romanian Education in the first half of the 19th century is the foundation of the Mihaileana Academy, institution that had a double purpose because of the structure of its courses: for highschool and university education. According to some opinions, the foundation of the Mihaileana Academy can be considered as the beginning of the Modern Romanian University Education.²⁸

In June 1835, in his quality of guardian and member of the Academic Committee, Gh. Asachi wrote the well-known Public School Regulations in Moldova, with the moral support of the Ruler, Mihail Grigoriu Sturdza, and the Public Education Guardianship that would be approved the day before the Academy was inaugurated. The new law that would serve as foundation for the organization of education in Moldova was given a preface by the same Asachi, on

²⁵ Idem, Document relativ la istoria instrucțiunii publice în Moldova, in *Icoana lumii*, nr. 24/1865; vezi și *Uricarul*, XVI, Iași, 1891, p. 411.

²⁶ N. Iorga, *Istoria literaturii române*, II, București, 1901, p. 517–518.

²⁷ G. Bădărău, *Academia Mihăileană*, Iași, 1987, p. 51–58.

²⁸ *Ibidem*, p. 90.

the 1st June 1835 in the document called General Picture of the Subjects to be Taught in the Mihaileana Academy and in Public Schools in Moldova.²⁹ A series of additional adjustments would give details about the organization of education. At the University level the Mihaileana Academy consisted of three faculties: the faculty of Philosophy, Law and two extraordinary technical courses: Applied Geometry, Economy, (Agriculture, Forestry and Veterinarian Education) and a school for painting. The Practical Geometry course took 3 years and consisted of subjects of mathematical and technical type, such as Architecture, Topographic Drawing, Geodesy, Differential and Integrate Calculus, building walls and roads, descriptive and applied Geometry. Technical University education was taught again due to Asachi's initiative again. The new technical courses were organized 2 years after the inauguration of the Mihaileana Academy in 1837, with the following professors: Al. Costinescu, for Practical Engineering and Architecture, Th. Stamate for Theoretical and Experimental Physics, Dimitire Asachi for Mathematics and Constantin Zefirescu for Chemistry and Chemical Technology. The graduates received diplomas for civilian engineers. It is also worth mentioning the fact that the Engineering Education professors got 250 gold pieces a year, being on the second position after the French language professors, who got 300 gold pieces a year, and before the Philosophy professors with their 200 gold pieces a year.³⁰

Gh. Asachi took care with the same rigor as always of the future of the institution by sending 7 young men to study in France and Austria as state scholarship owners to get trained as future national professors. 3 of them attended technical studies: Al. Costinescu "the theoretical practical sciences of civilian and military engineering, mechanics and hydraulics (4 year course), Costache Zefirescu "the technical chemistry and commercial science", Leon Filipescu "drawing boundaries, mechanics, rural economy with their parts". The extraordinary engineering courses took place until 1846.

5 years after the inauguration of the Mihaileana Academy, the anniversary document attested by the Ruler Mihail Sturdza contained the survey of all the instances in which the institution succeeded, having been founded in order to ensure the "advancement of the young people... which requires a longer period of study." The Ruler mentioned the endowment of the Academy with a room full of Math, Physics, Agronomy instruments and a public library" as well as "special knowledge for a useful career" acquired by the students namely "the school of civilian engineering" and "the school of painting".³¹

²⁹ Published in Institutul Albina din Iași, în anul 1835, in Romanian and French languages.

³⁰ Arhivele Naționale Istorice Centrale (ANIC), fond MCIP, Moldova, 208/1841, f. 17.

³¹ Arhivele Naționale Direcția Județeană Iași (ANDJI), fond Moldavian State Secretary, ds. 329/1834–1859, f. 19; the document was published by Gh. Asachi, in Albina românească, nr. 87 (supl.), Iași, 1840.

As concerning the reform of the engineering education in the Academy, it is worth mentioning the fact that Ioan Ghica was invited in 1842 as professor of Geology, Mineralogy and Political Economy; one of the most important public personality in the age of national renewal and the first great nobleman (boyar) that chose a teaching career. He would be part of the engineering class reform that became “a real faculty of science in the new project” containing a 1 year programme of study. Although he was a professor only for 1 year, from 12th October 1842 to 28th June 1843, he had an important role in reorganizing the engineering education and remained one of the most representative personalities of the time, just as M. Kogalniceanu who had honoured the Academy too. The arrival in Iasi of the distinguished professor was promptly announced by Gh. Asachi. In I. Ghica’s project the school curriculum consisted of: the 1st year: Elementary Mathematics, Special Mathematics, Stereometry, Algebra, Equations, Trigonometry, applications; the 2nd year: Descriptive Geometry with applications, Differential and Integrate Calculus, Physics, Chemistry, Linear Drawing, Natural History; the 3rd year: Mineralogy, Geology, Road and lane building, Architecture, Car Drawing; the 4th year: Bridge building, Iron Bridges building, designing plans, Architecture.³²

The students of the “engineering class” were trained to solve practical problems of economical and city interest for Moldova. After contributing to the project of the Academy Arch model, they presented documents for a glass factory, paper factory and beer factory, a public school, bridges and roads.³³ G. Giusca, the engineering student was even appointed assistant to Omer, an engineer, who would study the navigability of the rivers Siret and Prut.³⁴

This important chapter in the history of the Romanian education would end in a sudden manner in 1847, when as result of the new school regulations, the University courses in the Romanian language were cancelled while the Academy building was given to the French professor A. Malgouverne, who had a school for “30 sons of noblemen”.

Between 1856–1858 Gh. Asachi returned with his last educational project of reform in which he organized teaching into 7 groups of subjects: the last one comprising under the title Useful Arts the following 1. Mechanical and industrial arts. 2. Technology. 3. Agricultural arts. 4. Forest agriculture. 5. working in mines. 6. drilling into salt mines. 7. drilling for oil.

This was Gh. Asachi’s masterpiece. This was the way the half of a century mission of the most important creator of educational projects in the age of the national renewal ended. A new generation of creators would take over from their elders. The generation that had contributed to the great work of “acquiring knowledge, techniques and institutionalized forms of the West.” i.e. that of the

³² In Albina românească, nr. 81, Iași, 1842.

³³ All the information from Gh. Asachi in Albina românească, nr. 26, Iași, 1843.

³⁴ V.A. Urechia, op. cit., tom II, p. 203.

Illuminists, a work that created and replaced the cosmopolitan ideal of the 18th century with national values and imposed a utilitarian teaching vision, would leave history, being replaced by revolutionary and democrat nationalists, to whom we owe the creation of our modern state, a work in which educational projects would have an essential role.³⁵ Gh. Asachi represented the ideal that had just ended his career, in the article entitled the "Educated Man" published in "Albina Romaneasca" (The Romanian Bee). His generation had the mission to "illuminate people and be useful to them in order to increase other people's knowledge, enrich the vocabulary and the ideas of the fellow countrymen."³⁶ Gh. Asachi included in the category of "educated man" the engineer as then new creator of projects, beacon of light to other people and useful to them by means of his "practical knowledge" but also as contributor to the enrichment of the language and ideas. Being endowed with the spirit of an engineer, always concise and rigorous with notions, concepts and ideas, Gh. Asachi set the engineer as project creator at the same level with journalist, the writer, the playwright, equal contributors to the Romanian culture.

Because of his high knowledge acquired in Lemberg, Vienna and Rome, the teaching he offered his fellow countrymen in the "engineering class" at the Princely Academy in Iasi and later because of his role played in organizing the Mihaileana Academy, Gh. Asachi is the main promoter of the engineering education. The two initiatives were meant to emancipate the national culture. Because of his hard work in supporting the Romanian language in general, of his faith that it would be ready to offer abstract notions, to all the "epistemology", Gh. Asachi joined I.H. Radulescu among the most important promoters of the emancipation of the Romanian language. Except for the press, an area in which he excelled by setting up a few of the most important Romanian newspapers in the 19th century, there is no other area in which the scholar invested more perseverance and skill than the development of education in general and especially that of engineering education. In a time that there were few educated men, his noble idealism and his faith determined him to teach all the engineering subjects for the "engineering class" in 1813. His gesture does not mean pride but an imperative action. Later, he would excel in developing the engineering subjects, initiating a programme of training the engineers – professors abroad.

³⁵ P. Cornea, *Oamenii începutului de drum*, Craiova, 1974, p. 6.

³⁶ Gh. Asachi, *Omul literat*, Albina românească, nr. 12, Iași, 1839.

