

ENGINEERING EDUCATION AT ALMA MATER IASSIENSIS

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Abstract. The engineering school in Iași has a long and important tradition. The creation in 1912 of the departments of applied technical sciences within the Iași University sets the beginning of a new stage for Romanian technical higher education. Engineering education in Iași had been on a rising trend between the wars. Through the specialists they trained, the chairs of electrical engineering, technological chemistry and agricultural sciences contributed to the process of modernization in Romania. The creation in 1937 of the “Gheorghe Asachi” Polytechnic School was to complete the establishment of a technical higher education institution in the capital of the Moldavian Principality.

1. TECHNICAL HIGHER EDUCATION IN IAȘI BEFORE WORLD WAR I

Education institutions were the first among the national cultural institutions that attempted to effect change in the Romanian society during a period of mutations and transformation. The cultural effort at national level focused on synchronizing with Europe and the values she promoted. The efforts of Gheorghe Asachi and Gheorghe Lazăr in the former half of the 19th century would bring to the foreground a new agent of change, a new creator of design – the engineer. A new intellectual model was born, characterized by precision and practical mindedness, who cultivated accuracy – a feature that would prove extremely useful in the process of modernization undergone by the Romanian society.

In 1881, the efforts directed towards the creation of a national body of engineers would lead to the foundation of the National School of Bridge and Road Construction, which set as its aim to train engineers for the public service. Thus, higher education in applied technology was concentrated in the capital of the country (Bucharest).

The industrial revolution contributed to the emergence and development of new industrial sectors. Developments in the area of electrical engineering and the impetus in the chemical industry and its various sectors called for the training of specialists in fields other than those already existing within the National School of Bridge and Road Construction. The universities of Iași and Bucharest tried to meet this need and focused on new specializations that would be of a new well-defined technical nature.

At the beginning of the 20th century Romanian technical higher education moved into a new stage of its development as it introduced new disciplines in applied sciences within the universities of Iași and Bucharest. Through the efforts of such personalities as Petru Poni, Anastasie Obregia, Dragomir Hurmuzescu,

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Vasile Buțureanu, Paul Bujor, Ion Simionescu and others a number of conferences “referring to applied technical sciences”². As a consequence of these efforts, the High School of Electricity was founded on November 1st 1910, which ensured Iași an undisputed advantage in higher education in the field of electricity. Initially, training duration was no longer than a year; from the very first months, however, it became obvious that a year would not suffice in order to ensure adequate training. Therefore there was a proposal to provide a two-year training cycle, where the first one would be a preparatory stage and the second – the specialization stage.

In 1912, as the amendments to the Act of Secondary and Higher Education were enforced, legal conditions were created to establish the departments of applied sciences. Therefore, according to the Decree no. 4423 published in the Official Gazette no. 177 of November 17th 1912, technical higher education was founded in Iași, having the following departments: *Electrical Engineering, Applied Chemistry and Agricultural Sciences*. The new provisions brought administrative alterations to the Faculty of Sciences. Thus, by High Royal Decree no. 594 of February 13rd 1913, the High School of Electricity was transformed into the Electrical Engineering Institute; the change in denomination was also consistent with an increase in the duration of education.

These changes were mainly owed to Professor Dragomir Hurmuzescu’s initiative and activity; he is considered one of the founders of Romanian electrical engineering higher education. He would organize a similar department in București starting 1914.

According to the new provisions of the Act of Secondary and Higher Education, the Faculties of Sciences of Iași and Bucharest could organize “the study of mathematical and physical sciences, chemistry, natural sciences and their applications”³. It was also stipulated that the ministry could combine certain laboratories and seminars within one institute. Before the new amendments to the Act, on April 12th 1912, the Ministry of Education and Cults recommended that the Faculties of Sciences should consider the possibility of creating a form of agricultural education and of electrical engineering education and should forward proposals to this end.

On November the 7th 1912 the Official Gazette published the *Regulations for Applied Sciences*. As the document was passed, it legally established electrical engineering education as well as applied chemical and agricultural higher education. This meant a step forward in the creation of applied higher education at the University of Iași. Thus, the department of electrical engineering was created under the name of Electrical Engineering Institute derived from the old Electrical

² C.G. Bedreag, Învățământul superior tehnic-științific, în Revista științifică “V. Adamachi”, nr. 3/1915, p. 69.

³ Istorical Institutului Politehnic Iași (în continuare Istorical ...), vol. I, Arhiva Rectoratului Universității Tehnice “Gh. Asachi” Iași, p. 18.

Engineering High School. The department of Applied Chemistry and the “industrial” specialization were created around the Chair of Technical Chemistry, while agricultural sciences were grouped around the Chair of Agricultural Chemistry.

The curricula of electrical engineering higher education was reorganized. In the first and second year the students would receive general scientific training, while in the third – and last – they would be trained in their speciality, electrical engineering. On completion of the three year cycle, the Institute could issue two types of documents for the graduates: the *Diploma in electrical engineering* for the students who passed all examinations with a score higher than 14 (on a grading scale of 1 to 20) and had completed a three-month practical training period, and a *Certificate of graduation* for the students with a general score between 12 and 14.

The academic staff of the Institute underwent permanent change. Short after the initiation of Romanian electrical engineering higher education, the famous Professor Dragomir Hurmuzescu was transferred to Bucharest, where he created a similar institution. On May 1st 1913, Eugen Niculcea was appointed Head of the Physics, Heat and Electricity department⁴.

Starting 1905, great efforts were made in Iași to create departments of *Technological Chemistry* and *Agricultural Chemistry* after the model of those created at the Bucharest University under the guidance of Professor C.I. Istrati. The efforts of the Board of the Bucharest University and the academic staff within the Faculty of Sciences were successful when in 1911 the Ministry approved the creation of a Department of *Technological Chemistry*.

The curriculum of this section was according to the amendments to the Act of Secondary and Higher Education of 1912. Thus, in order to be awarded the *Diploma in chemical engineering*, the students had to graduate from the three-year education cycle. The students in the first two years had common courses with the students from the department of Physics and Chemistry within the Faculty of Sciences. The courses offered indicate that the focus was rather on theoretical than applied chemistry. This, however, should not be surprising, since in the first two decades of the 20th century, being a chemical engineer was seen as rather a laboratory activity than a practical one. Technical organic and anorganic chemistry were the disciplines that ensured the students quality practical training.

The curriculum of this department was not appropriate. For this reason, in 1918 it was replaced by one that had more applicability. The definitive regulations of the three applied sciences sections were issued the same year. The department of technical chemistry underwent the most thorough transformation. According to the new curriculum, the department also got a new name – *industrial chemistry*. The general technical disciplines had increased importance under this new curriculum, along with those dealing with “chemical technology”⁵.

⁴ Direcția Județeană a Arhivelor Naționale Iași, Fond Universitatea “Al. I. Cuza”. Rectorat (în continuare DJIAN. Rectorat), Dosar 84/1913, f. 699.

⁵ Istorical..., vol. I, p. 23.

The new curriculum was typical of chemical engineering education. The graduates had to be able to manage and, possibly, to conceive technological processes in the chemical industry. The changes to the curriculum were required by: the development of new branches in the chemical industry and therefore by an increased need for qualified chemical engineers; by the fast advances in the contents of chemical engineering education abroad, where the curricula were similar to the one adopted through the 1918 regulations. The consolidation of technical engineering education at the university of Iași allowed the department of technical chemistry to use common courses and professors from the Electrical engineering department in order to cover disciplines that were highly important in the training of a chemical engineer⁶.

To be awarded the diploma in applied sciences with the specialization *chemical engineering*, the students had to pass all the examinations, to have taken a practical training period for at least two months and to present their diploma paper in front of a board consisting of the Chair of the department and two other professors or assisting professors from the disciplines elected by the candidate. Those who were awarded the degree in engineering could also obtain a Doctor's Degree following the defence of an original thesis according to the norms of the Faculty of Sciences⁷.

Although by and large the 1918 curriculum met the requirements of that period's chemical industry and the possibilities of Romanian higher education, the practical results were not entirely satisfactory. Some of the elements that impeded the expected development of chemical higher education were: the insufficient number of academic staff that had to cover a large number of disciplines, the inadequate supply of didactic aids necessary for the appropriate progress of the educational process.

The creation of agricultural higher education at the University of Iași is strongly connected to the name of Haralamb Vasiliu, with a degree in agriculture from the Academy of agricultural studies at Hohenheim – Stuttgart and a Doctor's degree at the University of Breslau. He was appointed substitute Professor on November 10th 1906 at the department of agricultural chemistry within the Faculty of Sciences that was established the same year.

The course in agricultural chemistry delivered by Haralamb Vasiliu was attended by a large number of persons who wanted agriculture to develop on a rational scientific basis rather than through the exploitation of the peasants. The success this course had made Professor Vasiliu to start other free lectures that were complementary to the agricultural sciences: Phytotechny, Fruit tree growing, Zootechny, Agricultural industries. The service to agricultural education back in

⁶ Ibidem, p. 24.

⁷ Ibidem.

those years lay in the fact that in this way students pursued the accumulation of specialized knowledge and not merely a degree.

In order to appropriately manage the didactic activity, Professor Vasiliu took 60 hectares of land on a lease from the City Council of Iași. With the sum of 7000 lei (Romanian currency) he obtained from the Ministry of Education, he started to cultivate the land on lease. This land placed on the plateau named "Șapte oameni"⁸ near the village Aroneanu was also used for agricultural experiments until the autumn of 1911, when it was moved to the state property at Ezăreni, of 110 hectares and which was granted by the Ministry of Agriculture⁹.

On December 7th 1912, the basis of the department of Agricultural sciences within the Faculty of Sciences was laid. In the following year, the budget contained the sums necessary for the creation of an Assisting Professor position for the discipline Zootechny and one for Veterinary Medicine. Starting 1914, the former was held by Agricola Cardaș, previously the headmaster of the School of Agriculture at Țigănești-Tecuci; he had been delivering a free course in Zootechny for the students of the Faculty of Sciences¹⁰.

Between 1913 and 1916, the courses of the department of Agricultural sciences were delivered by the following professors: Haralamb Vasiliu, Agricola Cardaș, A. Georgescu. Because of the fact that the academic staff was insufficient, each course ran for two years.

According to the Regulations of the departments of applied sciences, each of these departments would be chaired by a director: a professor of Law, one of Physics for the electrical engineering department, one of technological chemistry for the department of the same name, and one of Agricultural chemistry for the department of Agricultural sciences¹¹.

The most important stipulation of the Regulations was the one related to the students' diplomas. Those who graduated from one of the departments of applied sciences within the University of Iași would be awarded diplomas with the mention *electrical engineering*, *chemical engineering* and *agricultural engineering* respectively. Due to this stipulation, the department of Agricultural sciences at the University of Iași became the first higher education institution in Romania with the right to grant the degree in Agricultural Engineering. The High School of Agriculture at Herăstrău and the Academy of Agriculture in Cluj obtained this right no earlier than 1921 through the Garoffid Act¹².

⁸ Seven men.

⁹ Anuarul Universității Mihăilene din Iași, 1930–1935 (în continuare Anuarul Universității ...), Editura Universității Mihăilene, Iași, 1936, p. 64.

¹⁰ DJIAN. Rectorat, Dosar 804/1913, f. 699.

¹¹ C. Vasiliță, Secția de Științe agricole a Universității din Iași (1912–1933), în 80 de ani de învățământ agronomic în Moldova (1912–1992), Iași, 1992, p. 33.

¹² Ibidem.

After World War I, the higher education system and consequently applied higher education underwent certain transformations. The number of students increased to such an extent that, with insufficient facilities, the Romanian universities found themselves in the position of being unable to face this demand.

2. THE IAȘI ENGINEERING SCHOOL (1918–1937)

The development of applied higher education within the University of Iași was affected by the beginning of World War I and the subsequent course of events. Even if the Romanians accomplished their long-lasting dream of a territory of united regions within the boundaries of the same state, the costs were high. One of the unfortunate consequences was the disruption of the process of modernizing technical higher education.

Despite the difficulties that the Romanians had to face during the conflagration years, the idea of a technical higher education was never totally abandoned. The wish for unity was strongly connected to the wish for scientific and cultural emancipation. In 1914, C.D. Bușilă wrote: “If ever in the future fortune helps us to accomplish our dream (that of state unity – author’s note – G.A.), the possibility will arise of creating new schools according to the same model, with a complete form of technical higher education”¹³.

After Romania became part in the war, especially in 1917 and 1918, no form of educational process could practically continue. Since a significant part of the country’s territory was under German occupation, the population was forced to take refuge to Moldavia. The main central administration institutions were relocated in Iași (Moldavia). Thus, the buildings of the University of Iași were requisitioned for the Ministry of War.

The ruling body of the University made efforts to resume the educational process. With a view to this aim, they repeatedly applied to the Government and especially to the Ministry of Education to have the Ministry of War evacuate the University’s premises. This requirement would be answered no earlier than the spring of 1918 when, in the Senate’s meeting of March 15th, it was ruled “that all academic courses will gradually reopen, as the rooms and labs and other venues in the university palace are evacuated by the departments of the Ministry of War”¹⁴.

Towards the end of World War I, in the academic environment of Romania, talks were reopened regarding the process of reorganizing technical higher education in Romania. Following the retreat from Moldavia, despite the difficulties, the academic staff of the two university centres – Iași and Bucharest – paid special

¹³ C.D. Bușilă, *Învățământul tehnic superior*, în “Buletinul Societății Politehnice”, București, an XXX, nr. 8–9, 1944, p. 16.

¹⁴ DJIAN. Rectorat, Dosar 848/1918, f. 11.

heed to the process of reorganization. In order to accomplish this task, it was deemed necessary to take into account models from other states where this type of education had reached maturity. Thus, the academia of Bucharest and Iași asked their French colleagues for help. It was initially designed that a French mission should come to Iași, but the subsequent events impeded this. Under the circumstances, the decision was made to send a Romanian committee to France with the aim of “studying general issues related to education and especially to higher technical education”¹⁵. This committee analyzed the experience in this area in various countries. The members of the committee found themselves faced with a choice from among: higher polytechnic schools in Germany, the encyclopaedic schools in France, the technical higher education institutions in Belgium, Swiss, U.S.A. and Japan, and the higher education technical institution in France.

The committee, of which the reputed Professor Hurmuzescu was a member, carefully analyzed all the possibilities and reached the conclusion that Romanian university technical institutions had to be created. However, the French model had to be “adapted according to the knowledge and technical precision that such education requires today”¹⁶. The members of the French-Romanian committee considered that it was necessary for the representatives of the Romanian industry to be involved in the development of technical and applied higher education. To this purpose, the necessity for the creation of an Improvement Board was established, that should include not only Professors in the domain, representatives of the Ministry of Commerce and Industry, but also representatives of the business environment in industry. According to the project suggested by the representatives of the committee, the duration of training in institutions of this type – Institutes – would be four years, of which two were destined to general scientific education and the other two to specialization¹⁷.

The students who attended such institutions were under an obligation that, during the holidays, they should have a practice period in a factory and take a study trip for at least six weeks and were to draw a detailed report of the activities during this period. This programme was aimed at providing “the future industrial engineer (or industrial manager) with a solid technical education, able to mold an agent of initiative with energy for the economic progress of the country”¹⁸.

As far as diplomas were concerned, those awarded to the students who passed regular exams and the special theoretical and practical tests of their specialization would have the mentions as follows: *electrical engineering*, *mechanical engineering*, and *chemical engineering*. Once they obtained the degree in engineering, those who

¹⁵ Învățământul tehnic superior în România, București, 1919, p. 45.

¹⁶ Stavri Cunesco, Organizarea învățământului tehnic superior pe lângă universitățile din România, București, 1919, p. 17.

¹⁷ Ibidem, p. 20.

¹⁸ Ibidem.

wanted to continue their studies could specialize further and obtain the Doctor's degree in engineering. This innovation was suggested by the members of the French-Romanian committee with the aim of "forming future industrial leaders, of encouraging research and deepening specialization, thus keeping in close contact with scientific progress and new scientific methods"¹⁹.

According to the information provided by the French-Romanian Committee project, in 1918 the Regulations of the departments of Electrical engineering, Industrial chemistry, and Agricultural sciences were issued within the Faculties of Sciences of the universities of Iași and Bucharest, and were subsequently published in the Official Gazette no.78 of June 29th 1918. In this document the current potentialities of Romanian higher technical and applied education were taken into account.

The new form of organization was in agreement with changes that the Romanian economy and especially our country's industry underwent and would subsequently undergo in the future. The modernization of Romanian higher education urgently required discussing and adopting new reforms. Thus, at the level of the Universities of Iași and Bucharest, the university boards considered the problem of reorganizing technical, agricultural and forestry higher education. Consequently, at the meeting of May 24th 1919 of the Grand college board of the University of Iași, Professor Anastasie Obregia introduced to the people present the conclusions of the subcommittees that had written a Bill aimed at the reorganization of technical and applied higher education. According to the conclusions that the members of the subcommittees reached, higher education had to be reorganized along two directions: theoretical and applied education²⁰. The latter form of education had to take place in special higher education institutions (Polytechnical Highschool, Agricultural High School, Forestry High School) where both fundamental sciences necessary for these specializations and theoretical courses along with applicative laboratories would be studied. All this range of disciplines would aim at forming specialists for the technical and economic domains.

Each school had to be able to grant a university degree and had to have a form of autonomous organization. The board of the institutions would be provided by the Administrative and Adaptation Council and would consist of the academic staff, the representative of the Faculty of Sciences of the University in the region, delegates of the Ministries interested in the specialization and representatives of the business environment.

The social and economic development of the country after World War I could not be achieved without cultural and education institutions that were appropriate in terms of size and curricula. The Universities of Iași and Bucharest would be subsequently joined by those in Cluj and Cernăuți, thus the number of higher education institutions increased.

¹⁹ Ibidem, p. 21.

²⁰ DJIAN. Rectorat, Dosar 907/1919, f. 43.

Having been severely affected by war, Romanian economy needed an increased number of specialists in its attempt to recover from the war effort. In order to train such specialists, Roads and Bridges High Schools, Mining High Schools, Electrical High Schools and Chemistry High Schools were needed – in other words institutions of technical and applied education, which had to be implemented in Bucharest, Iași, Cluj, and Cernăuți.

The issue of reorganizing technical higher education in Romania remained an important issue discussed on various occasions even before the outburst of World War I. The progress in the theoretical sciences, as well as in the applied sciences resulted in terms of education in an increment of the knowledge that would be taught in higher education institutions. Progress in chemistry, mechanics and physics revolutionized industry and technical applications and resulted in the introduction of new disciplines.

After the year 1918, the idea of consolidating this type of education began to spread widely and constantly; its purpose was to train a body of engineers that Romania badly needed. This issue became the focus of attention for both Romanian scientists and politicians. Thus, Constantin Angelescu, Ph.D., the Minister of Cults and Public Instruction repeatedly pointed out that there were two solutions to this problem: either to send young people abroad in order to be trained in specialized institutions or to have a quick and sound organization of technical higher education at home. The reputed Professor considered that in Romania the latter solution was required, i.e. the creation of specialized institutions with well qualified academic staff, able to provide quality higher education²¹.

Under such circumstances, and following discussions and consultations at government and ministerial level, a conclusion was reached that it was necessary to create two Polytechnic Institutes after the European model, however, taking into account the national specificity. As early as February 1919, Professor C.D. Bușilă, a Secretary General in the Ministry of Public Works, proposed a Bill for the reorganization of technical higher education where it was stipulated that a Polytechnic Institute would be created, namely a technical university that would include several faculties: Architecture, Forestry, Constructions, Mechanics and electricity, Mining and metallurgy. The reputed Professor's proposals would not, however, materialize, because of "the hard times"²².

Similarly, N.Vasilescu – Karpen, the future rector of the Polytechnic School of Bucharest, proposed a project for the reorganization on polytechnic principles of the National High School for Roads and Bridges whose head he was at the time. The transformation of the latter into a Polytechnic would be accomplished through the Decree no. 2521 of June 10th 1920. The new institution would consist of four sections: constructions, electrical and mechanic engineering, mining, and industrial chemistry.

²¹ Lucrări privitoare la Reforma învățământului superior din România Mare, Iași, 1919, p. 4.

²² Mihai Fătu, Istoria Universității Tehnice de Construcții, Editura Universității Tehnice de Construcții, București, 1998, p. 129.

In order to meet the demand for specialized and highly qualified academic staff that the country badly needed after the war, the decision was made to establish a Polytechnic School in Timișoara. Therefore, the Decree no. 4822 of November 11th 1920 sanctioned the creation of a new higher education institution of a technical and applied nature in the capital of the region of Banat.

During 1920 and 1921, the idea was circulated that a third Polytechnic University should be created in Iași, an idea which, however, did not materialize. Thus, for almost two decades after World War I, technical higher education in Iași continued to function according to Article 58 of the Secondary and Higher Education Act with the amendments of 1912. This institution had three departments: Electrical engineering, Chemistry and Agricultural sciences.

Although Iași did not have a polytechnic school, it was of essence that technical higher education should continue within the University. No later than a year from the creation of the Polytechnic Schools of Bucharest and Timișoara, certain people argued over the necessity whether didactic activity should be continued in the departments of applied sciences within the Universities of Iași and Bucharest. It was the academics and students of the Polytechnic School in the capital of the country that initiated this debate; they argued in favor of eliminating technical education within the universities and of concentrating it in the two Polytechnics. The immediate result would be that Iași would consequently lose its right to have technical education within the university. However, if in the case of the capital city the idea made sense, as the Polytechnic High School doubled the applied sciences department within the University, in Iași there was no reason to concentrate technical and applied higher education, as there was no Polytechnic School to double the one existing within the university, as was the case of Bucharest.

The idea of eliminating the departments of applied sciences from Iași brought about the discontent of the academics as well as of the public opinion, who did not accept the idea of concentrating this form of higher education in Bucharest and Timișoara only. Abandoning this form of technical and applied higher education was totally unsuitable under the circumstances, as these departments had already accumulated solid and valuable experience and they were able to provide quality training to the students, a fact that was proved by an increased number of students in the period after the war.

The controversy between universities and polytechnic schools escalated. The boards of the universities of Iași and Bucharest initiated a Bill regarding the Institutes of Applied Sciences, according to which they too could award a degree in engineering. This would be possible starting with the Higher Education Act of 1923, which regulated the right of these institutions to have the degree in *engineering* written on the diplomas they awarded. The Official Gazette no. 133 of September 15th 1923 published the Regulations of the Higher Education Institutes that eventually became departments of applied sciences within the Faculties of

Sciences. According to the new regulations, the duration of education increased from three to four years.

The academics at the Faculty of Sciences took various steps towards the preservation of higher education in applied sciences within the University of Iași and even made attempts at creating a separate faculty that would unite all the departments of applied sciences. The academics actually tried to separate these departments of applied sciences from the university and merge them into a technical faculty.

By creating such an academic entity, on the one hand, they tried to group the departments of applied sciences in an autonomous institution, on the other, they wanted to put an end to the attacks directed towards the universities that, through the 1923 Act had been given the right to award a degree in engineering. Despite this, the graduates from the departments of applied sciences were not accepted into the State's Technical Body, a privilege that was reserved only to the graduates from the Polytechnic Schools, so they could not therefore accede to certain positions in the state administration. This situation caused general discontent on the part of the students; consequently, on May 31st 1929, the students from the final years in the departments of applied sciences gathered in the auditorium of the Electrical Engineering Institute of Iași. On this occasion, the students present decided not to sit for the exams until Article no. 6 of the Technical Body Act was amended, which prevented them from acceding to this professional organization. Moreover, the academics and the Board of the Faculty of Sciences requested the decision making bodies that a technical faculty should be created. On the occasion of the discussion on whether it was opportune to create a Faculty of Divinity at Chișinău in 1926, Professor Petru Bogdan claimed that it was necessary to organize a faculty that would unite applied sciences within the University of Iași²³.

In the academic year 1926–1927, a committee formed of the Professors at the Faculty of Sciences (Cristea Otin, Haralamb Vasiliu, Ștefan Procopiu and Agricola Cardaș) proposed a Bill to create a faculty of applied sciences within the University of Iași. Professor P. Bogdan, the Rector, and Professor V.C. Buțureanu, the Dean of the Faculty of Sciences supported the committee's efforts, who were trying to bring together in one faculty the departments of agricultural sciences, technological chemistry and electrical engineering. The board of the new institutions would be formed of both the Professors and Habilitated Professors who taught only at the applied sciences departments and the academics from the other departments of the Faculty of Sciences whose courses were attended by the students of the applied sciences departments as well.

The initial form of the project drawn by the committee made it clear that the diplomas to be awarded should contain the degree in engineering: agricultural engineering, chemical engineering, electrical engineering. The authors of this project intended "an increased activity" and aimed at having a similar distribution

²³ DJIAN.Rectorat, Dosar 1122/1925, f. 4.

of the courses during the training years as those at the Polytechnic Schools. It was thus attempted to organize a form of education that met the needs of engineering. Although as far as form was concerned the future faculty would remain within the university, in terms of content it was meant to become a Polytechnic School. In terms of the academic staff that would teach at the new institution, the project considered the recruitment of qualified personnel from among the engineers in the above-mentioned domains²⁴. Also, during the Senate meeting of the University of Iași of March 5th 1930, on discussing the previous Higher Education Bill, the Senate members agreed to the standpoint of the Faculty of Sciences according to which a form of applied science education should be maintained in Iași, which would be organized as a Polytechnic School; for the moment, this form was appended to the university but it would, however, have to be transformed as soon as possible “into an independent polytechnic school that was imperative to the regions once part of old Moldavia”²⁵.

At the beginning of 1931, the Ministry of Education forwarded the Higher Education Bill to the universities. The Bill was also discussed at faculty level, by the University Board and by the Senate of the University of Iași. The first draft specified the creation of a Polytechnic School in Iași. The second draft that came into the possession of the university on March 12th 1931 contained no reference to the previous intention presented in the initial version of the Bill. Therefore, the University announced the Ministry that the members of the academic board unanimously agreed to transform the existing form of applied science education into a polytechnic department²⁶.

The academics of Iași considered that the transformation of the departments of applied sciences into a Polytechnic School could be operated without great costs, since the new institution could carry on making use of the laboratories of the Faculty of Sciences. Likewise, the teaching staff that delivered common lectures stated that they agreed to keep on teaching these disciplines if applied sciences education was separated from university education. Some of the people belonging to the departments of applied sciences supported the idea of the new institution in the meeting of the University College²⁷.

During the transition period, while it still carried on its activity within the university, the Board of the new Polytechnic School would consist of both Professors teaching at the newly created institution and those of the Faculty of Sciences whose lectures were attended by the students of this institution. The graduates from the new Polytechnic School of Iași would be validated and would have the same rights as their colleagues from the similar institutions in Bucharest and Timișoara.

²⁴ Idem, Dosar 1166/1927, f. 49–60.

²⁵ Idem, Dosar 1345/1930, f. 75.

²⁶ Idem, Dosar 1348/1930, f. 206–207.

²⁷ Ibidem.

During the period between the wars, the academics of Iași supported all along the idea of the two types of technical higher education coexisting, namely applied sciences within the university on one hand and the polytechnic school on the other. In relation with the latter, they found that “they were well organized and their graduates are highly appreciated”. At the same time, the importance of the *University Institutes* was not overlooked, which – in their opinion – would continue to cover the same needs²⁸. The academic staff considered that it was mandatory that they should be at the same level with the similar sections in the Polytechnic Schools.

In 1932, during the Iorga-Argetoianu Ministry, a new Education Act was adopted, which maintained and consolidated the position of the university technical departments, with a view to creating a Polytechnic School in Iași. The new legislative act set the legal framework within which the Universities could award the degree in engineering. The possibility was created that the graduates from the departments of applied sciences within the universities could be accepted in the State's Technical Body, which would allow them to hold certain positions of a technical nature within the state administration.

The departments of applied sciences within the Iași University had an almost similar development along the period between the wars. There was continuous progress from one year to the next with a peak in 1933 when the department of agricultural sciences became a faculty. We think that a brief presentation of this faculty's development would be of great interest.

Concerning the completion of studies, the Regulation indicated a state diploma signed by the Minister of Education. The degree in *engineering* would appear in the new graduation documents. By the new Higher Education Act of April 22nd 1932, passed during the ministry of the reputed historian Nicolae Iorga, the students graduating these sections would have the degree in *University Electrical-engineering* inscribed on the diploma issued. The additional word *University* was meant to differentiate the students who graduated the Electrical Engineering Institute from their colleagues who graduated the Polytechnic Schools²⁹.

The technological chemistry department's evolution was almost similar to that of the electrical engineering department. After the war and until 1923, the department was run according to the Regulations of 1918. The duration of education was three years, to which a period of two months for practical training in industrial plants was allocated.

New curricula were adopted for the department of industrial chemistry and they were implemented starting with the academic year 1924–1925. The graduates of this department had the degree in engineering written on their diploma.

²⁸ Constantin Cloșcă, *Învățământul tehnic superior din Iași în anii 1910–1937*, în *Istoria învățământului tehnic superior ieșean*, Editura “Gh. Asachi”, Iași, 1996, p. 72.

²⁹ *Memoriu relativ la concentrarea învățământului tehnic superior (în continuare Memoriu ...)*, București, 1937, p. 7.

According to the Higher education Act of 1932, the students who managed to pass the exams during the four-year education cycle as well as the final examination could be awarded the degree in university chemical engineering. It is important, however, to remember that the diploma in applied sciences in the specialization technological chemistry equalled the degree in chemical engineering.

In the case of the department of Technological chemistry and not only, beside didactic training, students were expected to have scientific training. To this purpose students who attended the courses within this department would be offered adequate research facilities. Hence, between 1930 and 1935, under Professor Cristea-Otin's guidance, many original research papers were elaborated and four Doctor's Degrees in the specialization of chemical engineering were awarded³⁰.

Following World War I, the state of agricultural education started to undergo various changes. While previous to the war, agricultural education was regarded by attendants as mainly a secondary occupation, right after 1918 an increasing number of high-school graduates started to attend the courses of this department, being interested in obtaining a degree in this field.

Faced with this flow of young people who were eager to become familiar with and to be trained in a career in agriculture, the University found itself entirely unprepared both in terms of equipment and human resources. Also, the teaching staff supposed to train the students was insufficient.

Gradually, the situation of agricultural education improved. The academic staff of the Faculty of Sciences provided ever increasing support to the department of agricultural sciences. The proposal made by the representatives from Bessarabia at the end of 1932, of transferring the department of agricultural higher education to Chişinău as a faculty was well received. Right after the unification of Bessarabia and Romania, an idea was made public regarding the creation of a form of agricultural higher education by the political representatives from Bessarabia, by the professors at the University of Iaşi and by the representatives from the Ministry of Education and Ministry of Agriculture as well. The fact that the territory between the rivers Prut and Nistru held an important part in Romania's agricultural production was of great consequence in deciding on the creation of a higher education institution specialized in agriculture in this area of the country.

The Romanian politicians' proposal was discussed during the meeting of the Board of the Faculty of Sciences of March 27th 1933. On this occasion, a motion was passed that was eventually presented to the Senate, which represented the Board's agreement to renounce the Department of agricultural sciences in favour of the creation of a new higher education institution at Chişinău³¹.

On April 9th 1933, after prolonged discussions, an Act was promulgated by which the Department of agricultural sciences was transformed into a faculty

³⁰ Ibidem, p. 85.

³¹ DJIAN. Rectorat, Dosar 1398/1932, f. 914.

within the University of Iași, having its headquarters in Chișinău. The possessions of the University of Iași were integrally transferred to the new institution: laboratories, chairs and conferences, the experimental fields at Adamachi and Ezăreni, the zootechnical experimental area in Copou. According to the same act, the faculty was also endowed with buildings, farms and the much needed financial means for the faculty to operate in the new location; the act also specified the manner of administrating this property. The Act also stipulated that by the end of the academic year 1932–1933, the Faculty of Agricultural Sciences should operate from the new location. There were academics who did not agree with the transfer of the faculty to Chișinău³².

Following the promulgation, Act no. 12 of April 9th 1933 was enforced; therefore, the farms and property were taken possession of, new bidding forms were filled for the repair of the buildings and equipment, the laboratories and the students' hostels were also repaired and equipped. Although the preparations were not completed, on November 16th 1933, the 3rd and 4th year students arrived in Chișinău for the beginning of the academic year. However, after a promising beginning, the Government did not continue to support – as they had undertaken they would – the newly created faculty. The money necessary for the settling and transformation process would be assigned at great delay no earlier than September 1934. Under such circumstances, the new institution found itself facing liquidation. Professor C. Angelescu, the Minister of Education, was the person who interceded to allot the necessary funds for the new faculty, so that it could continue its activity.

Between 1933 and 1938, this new institution of higher education operated from Chișinău, while it administratively belonged to the University of Iași. Along with the creation in the capital city of Moldavia of the Polytechnical High School and the promulgation of the „Act for the change and revision of the acts related to higher education and especially with a view to rationalization” of November 3rd 1938, the Faculty of Agricultural Sciences was integrated within the new institution of applied and technical higher education³³.

3. THE CREATION OF THE POLYTECHNIC SCHOOL OF IAȘI

The Universities' success of April 1932 when they were given the right to award the degree in *University Engineering* also led to an intensification of the dissensions with the Polytechnic Schools. The critical point of this period was the students' strike of the Polytechnic Schools, which was joined by the Professors teaching at these institutions. Moreover, the representatives of the “Carol the 2nd” Polytechnic High School of Bucharest wrote a *Memorandum related to the concentration of technical*

³² Ibidem, f. 915–916.

³³ C. Vasiliță, *op. cit.*, p. 40.

higher education by which, on behalf of the Polytechnic Schools of Romania and in agreement with the Romanian Polytechnic Association, the General Engineers' Association, the Association of the Progress of Forestry, the Licensed Engineers' Association of Bucharest and Timișoara, the University Engineers' Association required "that the concentration of engineering education should be implemented within the Polytechnic Schools, while the degree in engineering and the Doctor's Degree in engineering should be awarded only by these institutions"³⁴.

In their attempt, the students and teaching staff of the Polytechnic Schools were positively supported by the above-mentioned organizations. Thus, on February 14th 1937, the members of the Polytechnic Association of Romania met in an extraordinary session chaired by C.D. Bușilă; on this occasion, the persons present asked the hierarchical decision making organisms to rationalize technical higher education and to concentrate it in the Polytechnic Schools. As a consequence, a motion was initiated to be sent to the Government and Parliament; the text clearly reveals the engineers' desire to preserve their privileges.

On March 3rd 1937, owing to this new wave of protests, the Government decided to close down all universities, academies and polytechnic schools. Activity was to be resumed only when the senates of the universities and the academic boards (in the case of academies and polytechnic schools) considered that the situation was such that allowed the reopening of courses³⁵.

In March 1937, under the pressure of the general public, the Parliament passed a new Act of Higher Education. This law stipulated that only Polytechnic Schools could award the degree in engineering. After being promulgated and published in the Official Gazette no. 66 of March 20th, the law practically annulled technical education within universities. However, the new act specified the creation of a Polytechnic School at Iași, resulting from the transformation of the departments of applied sciences within the faculties of the University.

During the meeting of the academic board, the professionals from this institution resolved to create the Polytechnic School of Iași, according to the Act regarding the concentration of engineering training in the polytechnic schools. All the new departments and conferences whose courses and laboratories were attended by the students of the two applied science departments (Technological chemistry and Electrical engineering) would be transferred to the new institution³⁶. The new Polytechnic School would be an autonomous entity with its own administration and management which, however, would continue to use the University's building. The students of the new institution shared a number of common courses with the students from the Faculty of Science.

³⁴ *Memoriu* ..., p. 4.

³⁵ DJIAN. Rectorat, Dosar 1658/1937, f. 78.

³⁶ *Ibidem*, f. 82.

The people attending the meeting, who had been summoned for the establishment of the new school, decided that it should bear the name of Gheorghe Asachi³⁷. The people attending this meeting also unanimously appointed Professor Cristea Otin as the rector of the new Polytechnic. The members of the academic board also decided that, on request, the students from the technical departments could be transferred to the newly created institution, all the courses they had previously attended being acknowledged.

The desire of the academics of Iași to have a Polytechnic School as soon as possible was not fulfilled immediately after, due to numerous delays caused by the central authorities. Thus, the publication of the decision that stipulated the creation and opening of the new institution was held up. Moreover, on October 9th 1937, the Minister of Education, Professor Ștefănescu-Goangă, informed the University of Iași that “he decided to detain the creation of the Polytechnic of Iași until all the legal and material conditions are fulfilled, that are in keep with the consequence of this higher education institution”³⁸.

By cancelling the decision regarding the creation of the Polytechnic of Iași, this step actually implied that technical education in Iași was abolished. The minister's decision also caused further unrest among the students. Thus, on November 27th 1937, a meeting of the students from the technical institutes of Iași was held; on this occasion, a memorandum was addressed to the Ministry of National Education, the Ministry of National Industry and the Ministry of Defence, in which they requested that a new institution, the Polytechnic of Iași, should be created to replace the technical institutes that had been eliminated through the Law regarding the concentration in the Polytechnic Schools of engineers' training³⁹.

Due to the vigorous protest of the academics and students of Iași, on December 3rd 1937 the central authorities were forced to issue Decision no. 205660 by which the Polytechnic School “Gheorghe Asachi” of Iași was granted permission to function. The decision made by the Professors' board of the department of Sciences within the University on April 6th 1937 was thus validated. This decision was published in the Official Gazette of December 8th of 1937. However, it was no earlier than March 4th 1938 that King Charles the 2nd sanctioned and promulgated the Regulations and Statutes written by the Professors' board from the department of sciences within the University; this document was also published in the Official Gazette of March 11th 1938⁴⁰.

Although the Polytechnic of Iași was open for the first time in the autumn of 1938, its “birth certificate” was actually issued on April 6th 1937 – on this day the third Polytechnic School was founded in Romania. Enforcing the provisions in the

³⁷ Ibidem, f. 84.

³⁸ Cristea Niculescu Otin, Cuvântare, în Revista științifică “V. Adamachi”, nr. 3/1938, p. 136.

³⁹ DJIAN. Rectorat, Dosar 1637/1937, f. 34.

⁴⁰ Cristea Otin, *op. cit.*, p. 137.

act of March 20th 1937, the Professors' board of the Applied Sciences Department sought to turn to good value the experience in technical and applied disciplines accumulated in Iași up to that moment.

According to the decision regarding the creation of the Polytechnic School "Gheorghe Asachi" of Iași, it was settled that it will operate with two departments: Industrial chemistry and Electrical engineering. According to the Act regarding the modification and completion of the Higher Education Act especially with a view to rationalization" of December 4th 1938, the polytechnic schools were made equal in rank with the universities. One of the provisions in the same act was that the departments should become faculties and the head of the department should be the dean. The decision making organism would be the Senate, while the entire didactic process should operate according to the university pattern. Another provision of the new law was that the Faculty of agricultural sciences should be no longer part of the university, but of the Polytechnic School, bearing the name of the Faculty of Agronomy .

The department of Technological chemistry within the University became a faculty within the new higher education institution, consisting of eight chairs and 14 conferences. According to the Regulations of the Polytechnic schools, in order to be awarded the degree in engineering, the students attending the faculty had to pass all the exams of the four years of study, to take a three-month practical training period and to write a diploma paper. Prior to the presentation of the diploma paper, they had to take a final oral examination in front of a committee consisting of three professors or assistant professors of the faculty, one of which had to be the coordinator of the diploma paper. The first dean of the Faculty of industrial chemistry was Neculai Costăchescu, appointed to this position by High Royal Decree no. 4073/1938⁴¹.

Electrical engineering, the second faculty within the Polytechnic School of Iași, initially had three chairs and 14 conferences. However, many of them were shared by the two faculties. According to the Regulations of the Polytechnic schools, the students of the Faculty of electrical engineering had to go through the same procedure to be awarded the diploma. The first dean of this faculty was Professor Ștefan Procopiu, appointed by High Royal Decree no. 4073/1938 for a three-year period starting December 1st 1938⁴².

The creation of a new technical higher education institution represented a "great achievement" for the city of Iași, however, it meant a significant loss for the "Universitatea Mihăileană"⁴³. This statement is reasonable since 500 students, plus a number of academics were to be transferred to the Polytechnic School. However, the creation of a new institution of higher education in Iași gratified the vanity of the

⁴¹ Istoricul ..., vol. I, p. 40.

⁴² DJIAN, Fond Institutul Politehnic "Gheorghe Asachi" Iași. Rectorat, Dosar 2/1938, f. 449.

⁴³ The name of the University of Iași in the '30.

academics of the city, who had signalled that the University of Iași had repeatedly been put to a disadvantage in her competition with the other university centres.

The strengthening of the new Polytechnic School would be achieved in difficult circumstances during the war, when it was moved to Cernăuți and Turnu-Severin. One should emphasize the efforts made by the management of the new institution, by the students and the academia to preserve the tradition of engineering education in the capital city of Moldavia. Their effort would be rewarded in 1945, when the engineering school resumed its activity in Iași.

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