Gheorghe Țițeica – The MAN and the MATHEMATICIAN

Biographical Data

Gheorghe Ţiţeica was born in the city of Turnu-Severin, on October 4, 1873. Its father, Radu Ţiţeica, native of the Buzău city, was a mechanic on a ship while his mother Stanca was occupied with upbringing their children: a son and three daughters.

At the age of six years, Gheorghe Ţiţeica was enrolled at the German kindergarten of his city, and then he attended the primary school of Turnu-Severin where he obtained the first prize, every year.

Following the advice from his teachers, astonished by his ease in learning and by his logical reasoning, his parents – although they were quite modest – made efforts and succeeded to enroll their son Gheorghe Ţiţeica at a high school in the city of Craiova. Here he had, as a teacher of mathematics, G.P. Constantinescu – the father of the scientist Gogu Constantinescu. Starting with the school year 1885 until 1892, Gheorghe Ţiţeica attended the classes of the Central School of Craiova, now the „Carol I" high school. During his high school years, he was again distinguishing himself due to the logic grounding his reasoning at all disciplines in the curricula, especially at mathematics, also obtaining the first prize at the end of each school year. He also acquired the „Eufrosin Poteca" scholarship consisting of an amount of 30 lei and free housing at the high school's hostel. Not only his brilliant capacity to build logical reasoning was astonishing, but ***his humane side*** as well. Thus, he steadily helped his family from the money he got with the „E. Poteca" scholarship and with the coaching he gave, mainly after his father's death which occurred during his last year in the high school.

He was an extremely active teenager; he was the moving spirit of all cultural-scientific activities organized and carried out by his fellow students. Being an enthusiast of playing the violin, he often played this instrument by the occasion of concerts in his school and he also was deeply involved with edition the section of Mathematics in the „School's Magazine". His passion for violin accompanied him along his whole life. He constantly published papers dedicated to mathematics but also to philosophy, as well as articles of literary critique.

„School's Magazine" is considered, from the viewpoint of the history of mathematical magazines, as the second publication after the „Scientific Recreations" edited in the city of Iasi between 1883-1889.

After successfully passing the exam of Baccalaureate (school-leaving exam) in 1892, when Gh. Ţiţeica distinguished himself due to the originality of his answers, he was admitted on the first position at the Higher Normal School of Bucharest. On his certificate of high school graduation, the director and his former professor of mathematics at the junior high school level, Scarlat Mateeacu, insisted to add to the annual mean marks on the official document delivered to Gh. Ţiţeica a ***„permanent recommendation"*** with the mention, among others, that the distinguished graduate ***„gave evidence of an exemplar morality, he attended the whole high school classes with an outstanding success"***. This director's gesture deeply impressed the young graduate and put an imprint on his whole life.

Although he was affected by his father's untimely passing away, the young Gheorghe Ţiteica feels the need to approach the mathematics in a higher manner and applies for the University, Faculty of Sciences, Section of mathematics. Here he attends the classes given by outstanding professors of those times like David Emmanuel, Spiru Haret and Constantin Gogu – his mentor and guide on the path of geometry, on the path of science. But he was peculiarly impressed by Spiru Haret to whom he dedicated several studies and a monograph which remained as a landmark reference in the Romanian culture. Gheorghe Ţiţeica became Spiru Haret's successor at the Academy.

Due to his modest and balanced spirit, as a man of equilibrium and correctness and endowed with a high scientific background, Gh. Titeica was eulogistically appreciated by his professors: Spiru Haret, David Emmanuel, Constantin Gogu, Dimitrie Petrescu, the general Iacob Lahovary and others.

For Gheorghe Ţiţeica as well as for many other generations, the model of a gifted professor, sober and showing a proverbial exactness was Spiru Haret. That is why Ţiţeica dedicated him an eulogistic paper in the journal „Nature" No. 9 of 1914. Besides that, in his speech of acceptance to the Romanian Academy he praised all his professors, but especially his mentor and model Spiru Haret.

In 1895 he obtains the graduation degree (BA) in Mathematics and he is appointed as a deputy professor for a period of almost two years at the Theological Seminar „Nifon" of Bucharest. After graduating the exam of capacity for the university professors of mathematics, he is appointed for the higher education. His thorough grounding and his working strength conceded this right to him. In those times it was not possible to obtain the qualification for higher education elsewhere than in a western academic center. Ţiţeica succeeds in leaving for Paris, based on the hardly made savings from his salary.

Being passionate of geometry and nourishing a great wish to improve himself, Gheorghe Ţiţeica sustains, in 1897, the admission contest to the Higher Normal School of Paris where he remakes his graduation license thesis, being classified on the first position. During all the time spent in Paris he ceaselessly studied, exclusively partitioning his time between classes and libraries, according to a paper by Professor N. Mihăileanu that appeared in No. 8 of the *Mathematical Gazette* (1955).

At the *École Normale Supérieure de Paris* he meets famous professors of mathematics like Poincaré, Appel, Goursat, Hadamard, Borel, Tannery. At the Univesité Sorbonne de Paris he studies with the great geometer Gaston Darboux for preparing his PhD thesis entitled „On the cyclic congruencies and on the triple-conjugated systems", which he defended on the 30th of June 1899. He thus became the fifth Romanian Doctor in Mathematics of the University of Paris, after Spiru Haret, David Emanuel, Constantin Gogu şi Nicolae Coculescu. Being impressed by the classes of Geometry given by Draboux, Ţiţeica dedicates himself, with passion, to this branch of mathematics, obtaining remarkable results just during his studies. *„Ţiţeica*, wrote O. Onicescu, *was a geometer since his organic way to conceive the mathematical objects was the geometric one*". Gheorghe Ţiţeica publishes several articles at the *Académie des Sciences de Paris* but also in other French

journals, in the field of differential geometry. They were characterized by a systematization specific to the author.

Gheorghe Ţiţeica's life ended in Bucharest on February 5, 1939.

Didactic activity

In the automn of 1899, after presenting his PhD thesis, Gheorghe Ţiţeica comes back to his country where he is committed to give the course of *Differential and integral calculus* at the University of Bucharest. In 1900 year, at his only 27 years, he becomes an aggregate professor at the department of *Analytic Geometry and Spherical Trigonometry*; in 1903 he is promoted as a full professor at the Faculty of Sciences of the Bucharest University, where he worked for almost 40 years. Gheorghe Ţiţeica also taught at the Polytechnic School of Bucharest, firstly as a deputy professor in 1927 and, since 1928, as a full professor of *Mathematical Analysis*. Hence he passed through all didactic degrees although it was used that the appointment be directly done to the title of professor in ordinary. But Ţiţeica wanted to attest, by his own example, that the law has to be respected.

As a professor at the University of Bucharest as well as at the Polytechnic School of Bucharest, Gheorghe Ţiţeica turned out to be a ***great educator***. He was a supporter of the active pedagogical method, letting the students to assimilate the lesson just when it was handed over in the classroom. He knew how to emphasize the importance and the subtlety of the Geometry by beautiful problems with no routine, by spectacular proofs.

George Andonie, in the first volume of his „History of Mathematics in Romania" (published in 1965) wrote: *„Besides his quality of a great mathematician, Gheorghe Ţiţeica also had the one of a great pedagogue: he gave classes of an impeccable clarity, delightful lessons of a high pedagogical and instructive value, looked at from the angle of a humanized science".*

His lectures given at the Faculty of Sciences, at the Polytechnic School of Bucharest or at other extra-curricular conferences were masterly. No word in his lectures were under the sign of momentary improvisation, all his ideas to be presented were previously very well prepared. Due to this aspect, George Andonie states, in his just mentioned book: *„It is a pity that neither the famous Ţiţeica's lectures nor his speeches, full of impetus, uttered at the National Houses, were immediately published. They would have been a real spiritual treasure for the new generations that had not the chance to listen to Ţiţeica*". The author of his history compares Professor Ţiţeica with the great historians and orators Vasile Pârvan and Nicolae Iorga.

In the first academic year Ţiţeica gave lectures of *Analytic Geometry* and he renewed this course in each year, regarding it – each time – under another aspect. In the third year, at the class of *Higher Geometry*, he taught – each time – a chapter of differential geometry, rendering accessible the most delicate problems due to his skill to expose them. This course was also attended by graduates, by professors of secondary schools, by engineers, so that the lecture hall „Spiru Haret" was always full.

Ţiţeica was extremely exigent with respect to himself, he never came late to his class or exams, and he entirely observed the word or promise he

pledged to someone. Gifted with a clear mind and a powerful intuition, he was and example for what the disciplined work can bring, by permanently given up efforts, aiming at a continuous raising the level of a creative work. He carefully prepared all his lectures, orderly editing them on systematized copy books.

„The Mathematics appeared – wrote the illustrious Romanian mathematician Octav Onicescu – *in the expositions* (lectures / classes) *given by Gh. Ţiţeica as simple and linear, like the professor himself looked to be. But this simplicity hid an entire endeavor of personal systematization, in the same way as the simplicity of a man's look could conceal a personality with numerous inner resources".*

One of his former students, Nicolae Mihăileanu, confessed: *„Prof. Ţiţeica's lessons depicted a perfect art of pedagogy. At the beginning of every class hour he resumed the main ideas of the previous lesson; the given lesson was complete and it ended by a general view; the exposition was logical, clear, precise, in a very elaborate style and without use of any written notice. The important results were emphasized by the variation of intonation; all the calculations leant upon a powerful geometric intuition. He always gave his lesson at the understanding level of his students and he put so much soul in his teaching, such a warm conviction in all his presentation that his lesson captivated everyone from its very beginning, it persuaded you to watch him with vivid interest up to the end of class and to leave the classroom with the lesson already assimilated".*

Research activity

Octav Onicescu told: *Some scientists exist who have a slow evolution, uncovering their talent relatively late, during the university studies. On the contrary, other ones turn out early to be remarkable personalities*. Such a case was the great mathematician Gheorghe Ţiţeica, who distinguished himself, during whole his lifetime, by a strong power of work and an ever vivid interest for mathematics, accompanied by an exceptional creativity.

Gheorghe Ţiţeica, one of the founders of the Romanian mathematical school, interweaved his didactic activity with that of research in mathematics. He was the first Romanian mathematician who published a large number of scientific contributions (articles), and their value – worldwide recognized – brought an honor to our country.

Starting with the year of 1895, some results of his researches were published in „Gazeta Matematică" (*The Mathematical Gazette*). A series 50(fifty) papers were published in *Comptes Rendus de l'Académie de Sciences de Paris*, a prestigious French scientific journal. His PhD thesis was published in *Annales de l'École Normale Supérieure de Paris* and other about 100 articles were published in bulletins / journals of mathematics of Romania and other countries. His lectures given at *Université de Sorbonne* in 1926 were published in issue XLVII of *Mémorial des Sciences Mathématiques* and they were also reviewed in the year-book of progresses in Mathematics (*Jahrbuch über die Fortschritte der Mathematik*), which included reviews of all Ţiţeica's papers published in France. Starting from the year 1931, all his works will be reviewed in *Zentralblatt für Mathematik*. The famous German review journals took into account, as well, articles by Gh. Ţiţeica published in his country.

Summing up, the earlier cited book „History of Mathematics in Romania" recorded about 400 works (articles) of mathematics, technique, and culture authored by Gheorghe Ţiţeica.

Gh. Ţiţeica's mathematical genius showed out mainly in Geometry, he being considered as the founder of the centro-affine differential geometry. Mihail Ştefan Botez, in his book „Gheorghe Ţiţeica" (Tineretului Publishing House, 1958), wrote: *„His orientation towards Geometry should be inquired after sooner in his spiritual structure than in an outer influence*".

As a former student of the French professor Gaston Darboux, Gheorghe Ţiţeica was especially concerned with the study of networks in the *n*-dimensional space, they being defined by a Lalplace's equation. He created certain chapters of projective and affine differential geometry, where he introduced new classes of surfaces (in 1906), of curves (in 1911) that – on the proposal by Italian mathematician Gino Loria (1862 - 1954) – bear his name. Similarly, the „Problem of five lei coin" (a remarkable theorem in the plane geometry, which was discovered by Gheorghe Ţiţeica when he drew circles by aid of a 5 lei coin) is known under the name of „Ţiţeica's Theorem". This problem was proposed at the Mathematical Gazette's Contest of 1908, organized in the port city of Galaţi, a contest where Ţiţeica participated.

Gheorghe Ţiţeica published remarkable research articles in the domain of differential geometry, mainly in the projective geometry of networks and congruencies. Thus, he became notorious in the international scientific community. He generalizes the Cosserat theorem (1898), works out a classification of triple-orthogonal systems (1898) and the theory of geometric transformation. He also deals with the theory of surface deformations (1899); he shows how the deformation of a surface can be reduced to the study of certain surfaces (1906); he also deals with the higher order deformations in the sense of Bompiani (1936). He works out a projective theory of networks (1923); he investigates the limit figure of a set of networks associated to a Laplace sequence, analyzing two cases (1924); he takes into account networks with constant invariants (1934), or with an absolutely constant invariant (1935).

Here are several titles off the extensive Gheorghe Ţiţeica's mathematical heritage, monographs and textbooks: On the cyclic congruencies and triple-conjugate systems (Sorbonne, 1899); Projective differential geometry of networks (1928); Introduction to the projective differential geometry of curves (1931, in Romanian); Introduction to the Projective Differential Geometry of Curves (1931, in RO); Higher Geometry. Ruled Surfaces (1931, in RO); Mathematical vocabulary (1924, in RO); A problem book of Analytic Geometry (1929, in RO); Textbook of Analytic Geometry (1931, in RO); A problem book of Analytic Geometry (vol. I-II, 1939 and 1944, in RO).

Through his numerous works (textbooks, problem books, papers) of elementary mathematics and popularization of science, published during all his lifetime), professor Gheorghe Ţiţeica contributed to the raising of the level and prestige of the education system in Romania. Thanks to his contributions in Differential Geometry, published in various mathematical journals, his

name became known and established in the scientific world. He was considered as being one of the greatest World's geometers.

His books rejoice of a special appreciation and they have had a wide diffusion. In the treatises of specialty, the results due to Ţiţeica are written down and recognized; for instance, by Serghei Pavlovici Finikov (1883-1964), a great Russian geometer.

His volume „Problems of geometry ... and beyond them", published in 2014 by the Sigma Publishers, brings together a selection of Gheorghe Ţiţeica's papers from *The Nature* – Scientific magazine of popularization, published between the years 1905-1915, as well as a part of the problems of plane geometry, selected from his famous problem book. The selection of papers covers a wide variety of domains, what can be seen just from the titles of some articles: The love for science, Public education, The significance of astronomy, Astronomy and paintings, Mathematics and nature, Quadrate of the circle, The perpetual movement, Manufacturing of an umbrella, The principle of energy conservation.

Gheorghe Ţiţeica's encyclopedic spirit also manifested itself through his concerns in other fields. Thus, Ţiţeica also contributed to specific magazines / journals by literary and philosophical studies.

In the 1955 year, the rector of *École Normale Supérieure de Paris*, Etienne Guyon, called Gheorghe Ţiţeica „the patriarch of Romania's mathematical sciences", and this proves the importance of his creation until nowadays.

Through his numerous works of mathematics and science popularization, published during his whole lifetime, Gheorghe Ţiţeica consistently contributed to the advance of the mathematical education in Romania.

Contributions to the spreading of science

Gheorghe Ţiţeica also performed an intense work of spreading scientific knowledge by lessons, lectures and publications.

Even since the period of his academic studies, Gheorghe Ţiţeica's activity at the „Society of Mathematical Sciences' Friends" gets noticed. This society came into being in 1894, with Constantin Gogu as its president and Spiru Haret as vice-president, both of them Ţiţeica's former professors. The society published a scientific bulletin whose care was entrusted to Gh. Ţiţeica.

As the honorary president for culture at the „National Houses", he gave – once a week during 20(twenty) years – lectures, many of them dealing with meditations about morality.

Gheorghe Ţiţeica understood, from his mentor Cosntantin Gogu – president of „Science's friends' society" that the mission of a professor consists in spreading science among young ones.

Together with Ion Ionescu, Andrei Ioachimescu and Vasile Cristescu, he founded the „Gazeta matematică" (Mathematical Gazette) magazine where he developed a rich activity, just since its appearance (1895), with papers and problems. The first issue of the „Gazette" was published on September 15, 1895, with the watchwords: *enthusiasm*, *harmony*, *continuous sacrifices* and

disinterested work. It was the first magazine of mathematics which was published in Romanian language, standing for a landmark to the start of a new stage in the development of the Romanian mathematics. The activity of the magazine during its first 15 years was exquisite. It was also founded the „Library of the Mathematical Gazette", where problem books with answers and hints were published, and also books to support school students for going thoroughly into mathematical study. The king Carol I expressed his wish to see the Mathematical Gazette and he received, in an audience of 1903, professor Gheorghe Ţiţeica who presented him all the issues of Gazette's collection.

Spiru Haret considered that, in those years, the Mathematical Gazette *„contributed, more than any other institution, to the development and strengthening of mathematical education*".

Starting from his creed that *„Mathematics, if understood, becomes simple and easy to be applied*", Ţiţeica undertook an activity of over 4 decades in the service of mathematical education at the high school level, for the training of the top students by his intense and fruitful activity at the Mathematical Gazette, starting from 1895.

Professor Nicolae N. Mihăileanu told: *„Gheorghe Ţiţeica's activity with the Mathematical Gazette is a touching proof of commitment from a man of a highest culture for the problems of the secondary education*".

For the way he sustained and strengthened the Mathematical Gazette, Ţiţeica was considered as one of the four pillars of this magazine which built up generations of engineers and mathematicians.

In 1910 it was founded the „Society Mathematical Gazzette" (SGM). As earlier mentioned, setting up of this SGM was preceded by the short existence of the „Society of Mathematical Sciences' Friends" (1894) and the setting up of the „Romanian Society of Sciences" (1897-1949).

Until 1949, the SGM's activity was centered round the publication of the Mathematical Gazette, and – after 1949 – it got various names. Since 1990 it is called the *Society of Mathematical Sciences of Romania* (SSMR). In the year of 2000 it was declared to be the successor of the *Mathematical Gazette Society.*

In the 1905 year, together with Professor Gheorghe G. Longinescu (1869 - 1939), he founded the „**Natura**" (**The Nature**) magazine, whose purpose was to disseminate various domains of science and which appeared between 1905-1949. He published here many papers of general culture, about Archimedes, Galilei but also about his professors during the faculty. Starting from 1905 and until the end of his life he collaborated with this magazine „The Nature" where, with an unsurpassed literary talent, he wrote papers aimed to attract young people towards science.

Gheorghe Ţiţeica, as an outstanding popularizer of science, together with Dimitrie Pompeiu, edited the journal "**Mathematica**".

He was the president (chairman) of the „Romanian Association for the Advance and Spreading of Sciences", of the „Romanian Society of Sciences", of the „Mathematical Society of Romania", of the „Society Polytechnic" – an engineers' association set up by the occasion of the Buzău-Mărăşeşti

railroad's inauguration, the first railroad designed and built by Romanian engineers.

Ţiţeica also offered many public lectures of topics of wide interest.

National and internationala recognition

Gheorghe Ţiţeica enjoyed an exquisite national and international recognition, certified by the following memberships and titles.

- Corresponding member of the Romanian Academy from May 1909, then full member of the Romanian Academy from 15th of May 1913, becoming – in 1929 – the General Secretary of this high scientific forum, after being its vice-president in 1928;
- Corresponding member of the State Academy from Maryland (USA–1930);
- Member of the Society Scientiarum Varsoviensis (1933);
- Corresponding member of Society of Sciences from Liège (1934);
- Doctor Honorius Cause of the Warsaw University (1934);
- Dean of the Faculty of Sciences – University of Bucharest between 1911-1923;
- He contributed, after 1919, to the organization of the Romanian University from Cluj;
- He participated to the IV-th International Congress of Mathematicians (Roma-1908);
- Chairman of the section of Geometry at the International Congresses of Mathematics held in Toronto (1924), Zurich (1932), Oslo (1936), Bucureşti (1934), Atena (1934);
- He gave lectures at the Faculty of Science in Paris (Sorbonne - 1926, 1930 and 1937), Bruxelles (1926) and Roma (1937);
- He was, for several times, the president of the „Mathematical Society of Romania", of the „Romanian Society of Sciences" (since 1908), of the „Romanian Association for the Advance and Spreading of Sciences";
- Vice-president of the Polytechnic Society of Romania (1931-1939);
- He was member and then the president of the Permanent Council - the highest instance of the Ministry of the Public Instruction (1905).

Eulogies brought to the scientist Gheorghe Ţiţeica

Academician **Octav Onicescu** (1892–1983), in his book „Scientists of the World" of 1975, included the article „Gheorghe Ţiţeica" where he wrote, among others: „Gheorghe Ţiţeica's personality was complex: he was a geometer, ranked amidst the prominent levels of the founders of a new geometrical science; he was a professor whose unbroken activity essentially contributed to the formation of a strong Romanian school of mathematics; he was a guide for the institutions whose setting up and organization were solidly contributed by him; he also was a guide for the people eager about his words able to direct their thoughts and activities.

Octav Onicescu wrote about Ţiţeica's personal features: *love for the simple people, passion for the entire science, an organic way to conceive through Geometry the mathematical objects.* He also wrote: *„An authentic geometer, he built up something more difficult and more essential, the fundamental objects of a new Geometry. Ţiţeica's creative work was entirely initiated in Bucharest, in the loneliness of his room with book shelves, but permanently keeping his contact with mathematical activity of everywhere".*

Octav Onicescu: "*Gheorghe Ţiţeica is conscience itself of our scientific society. With an almost mystical feeling of a high vocation, under sometimes seemingly cold appearances, he cultivates a warm understanding of the people, aside with the purest passion for the great interests of his homeland. Between these interests he lays, on the first place, the spiritual values for which he sacrificed the whole plenty of his energy. He served them, doing all his best for improving the perfect knowledge and – at the same time – taking great pains, with a deep understanding, for the cultural level of masses of people whose enrichment with spiritual goods brings the grandeur of the country. Together with him, along the unknown ways of the future, we are going to feel more secure, stronger, more steel-like and we will have the certainty of reaching the high achievements for which we are settled on this corner of Earth".*

The mathematician **Dan Barbilian** (1895–1961), known as a poet under the name of Ion Barbu, formulated a beautiful description of his former professor, Gheorghe Ţiţeica: *„My professor's eyes, precise and blue, in the meridian plane of the amphitheatre, seem to materialize the circular points at the infinity, organizers and absolute. While his face unfolds on the black background of the board as the mask of geometry itself. Like the absolute non-euclidean sphere*". And the same **Barbilian** about the course of analytic geometry: „It flows like a river of clarity whose waters you cannot see twice (in each year his lessons get another face)".

Henri Léon Lebesgue, a colleague of academic year at *École Normale Supérieure de Paris*, later becoming famous in Mathematics, told about Gheorghe Ţiţeica: *„I was delighted with finding him again, full of liveliness, happy to speak about his home, beaming, with his bright yet discrete sight, with the same magnificent moral health. I was understanding that the care for his duty to accomplish and an euphoria springing from his conscience of fulfilled duty met in his person*".

The French mathematician **Paul Montel** (1876-1975) – who visited our country five times, starting from May 1927, and who each time gave lectures of Theory of Functions at our universities – was also a colleague of academic year with Gheorghe Ţiţeica at *École Normale Supérieure de Paris* and he remained, for all his lifetime, one of his close friends. Here is what he wrote about Gheorghe Ţiţeica: *„His steadiness and the constancy of his character are less usual qualities that, together with so much knowledge and sacrifice of him, are very seldom met*". Paul Montel and Arnaud Denjoy mentioned, by the occasion of the first *Congress of the Romanian Mathematicians*, held in Turnu Severin in 1929, that *„The French university feels quite honored to count – among his professors – the Romanian scientist's Ţiţeica şi Pompeiu*".

The mathematician **Petre Sergescu** (1893–1954) wrote, in 1930, about his professor Ţiţeica: *„He never delay, no minute at the entrance to the class and no minute out. His lesson was harmonically divided; sometimes he approached an unexpected development, for closing it in splendor just when the bell was ringing*".

The mathematician **Botez Şt. Mihail** in his book „Gheorghe Ţiţeica", Editura Tineretului, 1958: *„His straightening towards Geometry should be looked for rather in his spiritual structure than in any other strange influence*".

The academician **Gheorghe Vrânceanu** (1900–1979) says: *„G. Ţiţeica's cultural and scientific activity was, by the way, extremely rich. His cultural activity was covered by a large number of papers and lectures of science popularization. Certainly, that which brings a fundamental Gheorghe Ţiţeica's importance is the original scientific work of a creator in the domain of the Differential Geometry".* Also here, Vrânceanu says that „By his creative works, *G. Ţiţeica certainly remains our greatest geometer, his name being known in the entire mathematical world".*

Patriarch Miron Cristea: *„You was working, my dear friend, since you were a child in the primary classes, you supported yourself rather alone, you climbed – step by step – all the education degrees, you reached the highest social positions ... You bear, over seas and lands, the fame of a Romanian mathematician's name. With Ţiţeica's surfaces and networks, you carved in the granit slabs of universal sciences a Romanian name".*

The journalist **Virgiliu Tătaru**, a master of the pen of nationwide value:

„In the epoch when he lived in, he was one of the most prestigious and charming lecturer, a consistent popularizer not only of mathematical knowledge but also from the most diverse domains. He enjoyed a clear wording, logically connected up, which harmoniously connected elements of science with artistic images, using interesting and attractive expressions, comparisons that allowed him to underline his intended purpose, his original and brilliant ideas, that strewed his whole speech, both when he spoke in front of his audience or a radio station, where he often used to be o honorary guest.

Nicolae Iorga: *„By the brink of the cemetery full off memories, near the precipice waiting for other human remains, it was drawn down, two weeks ago, a man impossible to be replaced. About what represented Professor Gheorghe Ţiţeica can speak specialists in mathematical studies, and the most brilliant proof of his value came – some years ago – by his invitation to Sorbonne for giving there lessons in a branch of science for which nowhere could be found someone more competent".*

The appraisal and respect enjoyed by Gheorghe Ţiţeica during his life are rendered in the words uttered by one of his former students at his death, and cited by Ion Ionescu in the preface to the textbook of Analytic Geometry, which appeared shortly after his passing away (the end of February, 1939). *„In front of the mystery of death, the life is a solemn instant. Bring to this solemn moment a noble heart and a great soul. Then, between those sleeping in the earth and us, it will be a strong link: that what they carried out we have to bring to a close*".

Quotations from Gheorghe Ţiţeica

⇨ *„The slyness, cunning, lie and how many other abilities that are employed, sometimes successfully, unfortunately even with very high success, in the everyday life, have no place in the mathematical proof*", wrote in the text of his lecture entitled „Mathematics and Art" and, further down: „The world of mathematics is an ideal world, governed by a crystal-like order and beauty".

⇨ *„There exists, among mathematicians, a deep-seated and strong belief which sustains them in their abstract studies, namely that none of their problems can remain without any answer*".

⇨ From Gheorghe Ţiţeica's speech at the 40 YEARS CELEBRATION OF „GAZETA MATEMATICĂ": *„Born at the same time with the Greek art, the mathematics kept in its canvas, in its intimate structure, a certain affinity with art. It comes to the same harmony in Euclid's geometry as in the ancient temples. It is the same silence, the same balance in demonstrating a theorem as in the admirable columns of the Acropolis"*.

⇨ *„During entire my life I have been nothing more than a simple soldier. I wished to remain within the rows of my nation's workers"*.

⇨ A famous definition due to Gheorghe Ţiţeica: *„Mathematics is a way to express the natural laws, it is the simplest and the most appropriate mode to describe a general law or the flow of a phenomenon, it is the most perfect language for narrating a natural phenomenon".*

⇨ Here is the way he closed, in the „Natura" magazine, a paper about a maximal surface with a minimal perimeter which is – as we know – the circle: *„Therefore, the geometry also tells us that we must defend our national borders, as being the most advantageous to our Homeland. I know and I am convinced that you will defend them*".

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