Michael M. Dediu

Professor Petre P. Teodorescu

A Great Mathematician and Engineer

A short presentation with photographs

NOTA EDITORULUI

Când un român afirmat în străinătate își amintește că țara lui de origine reprezintă cununa celor care l-au format aici pentru a se afirma dincolo, când un om de succes din occidentul pe care-l invidiem vorbește despre rădăcinile categorice ale acestuia care se află în școlirea pe care a făcut-o acasă sau prin personalitățile care i-au asigurat aici temeiurile, atunci fenomenul românesc în lume devine limpede și nu avem cu ce ne rușina.

Cartea doctorului Michael M. Dediu din Boston, despre profesorul Petre P. Teodorescu, până chiar la această lună care l-a trecut în nemurire trăitor în București : *"Professor Petre P. Teodorescu: A Great Mathematician and Engineer"*, este o asemenea demonstrație. Faptul că ea circulă în limba engleză, este o dovadă a interesului de care știința noastră se bucură în lume, iar personalitățile care o slujesc nu sunt cu deloc mai prejos pe planul afirmării mondiale.

Ne facem datoria de a o pune la dispoziția publicului nostru cititor.

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Preface

Based on my discussions and correspondence with Professor Teodorescu, and with others who know him, I present this homage book about Professor Teodorescu, on his 83rd birthday.

Professor Petre P. Teodorescu is a great European personality in the fields of mathematics and mechanics, with a charming life history, which it is important to be known not only by specialists.

For this reason we wrote this book for the general public, with only few technical details at this time, including numerous enchanting photographs taken at conferences and with other occasions, as well as notes about ideas and events from the last 83 years.

I want to thank my wife Sophia for her continuous help and assistance.

We wish all our distinguished readers good reading, and great enjoyment while discovering this great European personality, from whom many valuable lessons can be learned.

Michael M. Dediu, Ph. D.
U. S. A.

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Chapter 1 Around 1930 in Europe

Just 4 days before the 153rd birthday of the U. S. A., when the 31st US President (1929 – 1933) Herbert Clark Hoover (1874 – 1964), a professional mining engineer, was preparing for his first Fourth of July as President, and when Professor Gheorghe Vranceanu was celebrating his 29th birthday, Professor Petre P. Teodorescu was born, on June 30, 1929, in the Eastern European city of Bucharest, the capital of Romania.

His father Petre M. Teodorescu was a civil engineer, who became later professor at the Civil Engineering Institute from Bucharest. The father's portrait is on the wall of his son's office.

Professor Petre P. Teodorescu recalls with emotion about some people from his youth. The remembrance is quite vivid, and exudes a great respect and praise, especially for his father, to whom he owes a lot in his formation.

Professor Teodorescu's grandfather from the father side was a shepherd in his youth, somewhere in the Gorj region.

When the grandfather was around 10 years of age, he left home and established himself in the Dragasani city (Oltenia region).

Here he learned to be a shoemaker. He was a hardworking man and had his own shop. He prospered and built himself a house with a garden. He married and had five children (three boys and two girls). The girls became teachers and the boys became civil engineers. The middle boy was Petre's father.

When the grandfather died, the professor's father left home and arrived in Bucharest, to leave with his aunt, who was the director of a small pedagogical school.

He enrolled in this school, but unfortunately, he didn't finish it because it started the World War I, in 1916. He enrolled as volunteer in the Romanian army and walked from Bucharest to Moldova, about 300 km to reach his military unit.

He survived the war and returned to Bucharest where he finished the school to become a teacher.

His father said “I can do more”, and this became the light motive of his life. He always strived to do more and better. He enrolled at the Civil Sub-engineering College, which he finished in three years. Again, he said to himself: “I can do more”! And he enrolled at the Polytechnique School from Bucharest.

At the Polytechnique School from Bucharest, at the Civil Engineers Faculty, he was one of the best students at the time, and became the favorite student of the renowned Professor Ion Ionescu - Bizeț (Bizet being an addition to his name given by the students, because of a cover he used over his boots for protection against the water and mud).

Taking a short review at how the education in the young United States at that time was implemented we find that the main idea was that self-government can succeed only through an instructed electorate. The objective was not simply to overcome illiteracy. The USA has marched far beyond that. But the more complex the problems of the Nation were, the greater was the need for more and more advanced instruction. Moreover, as the numbers increased and as the life expanded with science and invention, the US had to discover more and more leaders for every walk of life. The US could not hope to succeed in directing the increasingly complex civilization unless the US could draw all the talent of leadership from the whole people. These are interesting and still valid guidelines which govern the education process.

After the father completed his study with brio, he became an engineer at the Romanian Railways.

Because of his profession he moved a lot around the country, mostly on very large construction sites. The family followed him everywhere, and for this reason the little Petre completed the first elementary classes home, privately, not in a school.

From the first years little Petre learned to speak German, and he began to know the alphabet when he was 3 – 4 years, and when he was–5-6 years he began to read books for children in Romanian and German. Then he began to learn French, and reading many books by Jules Verne, helped him to really improve his French.

Between 1935 and 1938 the father worked in the mountains from the North of Romania, on a very difficult rail road, and built the most tunnels, which, along with the numerous bridges and viaducts are the most beautiful civil engineering achievements in Romania.

What ideas were expressed around 1937 in the USA?

- A Government is competent when all who compose it work as trustees for the whole people.
- It can make constant progress when it keeps abreast of all the facts.
- It can obtain justified support and legitimate criticism when the people receive true information of all that government does.

These are excellent ideas any time.

In 1939-1940 the father worked in the attractive city of Predeal, in the Bucegi Mountains, to build a second tunnel for the Railroad. Now, in 1939, when little Petre was 10, he finally went to a school, directly in the fourth grade. In 1940 the family came to Bucharest, and the World War II was on.

And what they were thinking in the USA around 1940?

- To them there has come a time, in the midst of swift happenings, to pause for a moment and take stock - to recall what the US place in history has been, and to rediscover what they are and what they may be. They said that if they do not, they risk the real peril of inaction.
- Lives of nations are determined not by the count of years, but by the lifetime of the human spirit. The life of a man is very short. The life of a nation is the fullness of the measure of its will to live.

- They said that there are men who doubt this. There are men who believe that democracy, as a form of Government and a frame of life, is limited or measured by a kind of mystical and artificial fate that, for some unexplained reason, tyranny and slavery have become the surging wave of the future - and that freedom is an ebbing tide.
- But, they said, we Americans know that this is not true.

- They worked hard to have greater security.
- They said that they have a better understanding that life's ideals are to be measured not only in material things.
- They said that most vital to their present and their future was the experience of a democracy which successfully survived crisis at home; put away many evil things; built new structures on enduring lines; and, through it all, maintained the fact of its democracy.
- They said that the coordinate branches of the Government continued freely to function. The Bill of Rights remained inviolate. The freedom of elections was wholly maintained.

- They said that the prophets of the downfall of American democracy have seen their dire predictions come to naught.
- They said that the democracy was not dying.
- They knew it because they have seen it revive - and grow.
- They knew it cannot die - because it was built on the unhampered initiative of individual people joined together in a common enterprise - an enterprise undertaken and carried through by the free expression of a free majority.
  These are refreshing and empowering ideas indeed.

Little Petre started the lyceum, which then had a duration of 8 years. He attended Matei Basarab Lyceum, one of the best in the whole country. It was founded in 1860, when Alexandru Ioan Cuza, by decree, created the University from Iasi, which now has his name, and two lyceums: Gheorghe Lazar and Matei Basarab.

Chapter 2 Churchill, Roosevelt and Romania

Sometime in 1943, Churchill approached Roosevelt:

"Franklin, look, Stalin is getting stronger and he may throw the Germans out of Russia sooner than you think."

"I don't think so" replied Roosevelt, while melancholically smoking.

"Listen," insisted Churchill, "I think that it would be prudent to organize a solid debarkation in Greece, attack north, liberate Greece, Bulgaria, Romania, and Poland, and the rest of Europe will follow, while Stalin remains in Russia."

"Winston, you are too concerned with Stalin," pointed Roosevelt. "Even if he comes to Berlin, he will return to Russia after war."

"My dear Franklin," smiled Churchill, "I wish you are right, but I'm afraid that you are too optimistic."

Churchill was right, and the Soviet Union controlled Eastern Europe for 44 years after the war, until 1989.

Let's see some of Churchill's quotations, from my books:

- ***Democracy is the worst form of government except all those other forms that have been tried.***
- ***I am an optimist. It does not seem too much use being anything else.***
- ***My most brilliant achievement was my ability to be able to persuade my wife to marry me.***
- ***Mountaintops inspire leaders but valleys mature them.***
- ***(Regarding the Royal Air Force fighting at the beginning of World War II) Never in the field of human conflict was so much owed by so many to so few.***

In 1944 the Russian army entered Romania, and the German army was leaving, destroying many Railroads on their way. The father was named the boss of all the repairs of the Railroads from Transylvania.

An important viaduct was temporarily built in a month, only from wood, and the Russian engineers remained impressed by the talent of the Romanian engineers.

Chivu Stoica, a big new communist leader, appreciated also the father's work.

After finishing the work in Transylvania, father returned to Bucharest, and in 1952 was named the boss of the Railroad work needed at the Danube – Black See canal.

The work at this canal was done mostly by political detainees, and the secret and very abusive Security was in control. The father was more tolerant, and one day was informed to come the next day to the Security to give explanations. That was really bad news, because the Security was famous for arbitrarily punishing very hard innocent people.

But in the same day, in Bucharest was decided to build the metro, and Chivu Stoica, who was in control of this plan, called the father to immediately come to Bucharest, to be the chief engineer for this project. The metro was built later, but the father escaped from the Security interrogation.

And what the Americans were saying around 1953?

- They said that the world have passed the midway point of a century of continuing challenge. They sensed with all their faculties that forces of good and evil are massed and armed and opposed as rarely before in history.
- Their faith was that the future shall belong to the free.
- Since this century's beginning, they said, a time of tempest has seemed to come upon the continents of the earth.
- Masses of Asia have awakened to strike off shackles of the past. Great nations of Europe have fought their bloodiest wars. Thrones have toppled and their vast empires have disappeared. New nations have been born.
- For their country, it has been a time of recurring trial.
- They have grown in power and in responsibility.

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Then the father became the Dean of the Rail Roads Institute, which later became the Faculty of Roads, Bridges and Rail Roads from the Civil Engineering Institute. The father was a professor until he retired, at 70, and his portrait is posted in the Executive Meeting Room.

Let's see now what the Americans were saying around 1961.

- The world was very different then, they said. For man holds in his mortal hands the power to abolish all forms of human poverty and all forms of human life.
- And yet the same revolutionary beliefs for which their forebears fought were still at issue around the globe - the belief that the rights of man come not from the generosity of the state, but from the hand of God.
- They dared not forget then that they are the heirs of that first revolution.

- They said: let the word go forth from this time and place, to friend and foe alike, that the torch has been passed to a new generation of Americans - born in this century, tempered by war, disciplined by a hard and bitter peace, proud of their ancient heritage - and unwilling to witness or permit the slow undoing of those human rights to which that American Nation has always been committed, and to which they were committed then at home and around the world.
- Let every nation know, they said, whether it wishes them well or ill, that they shall pay any price, bear any burden, meet any hardship, support any friend, oppose any foe, in order to assure the survival and the success of liberty.

As hobbies the father liked numismatics and philately, and he was a member of the Numismatics Society, whose president was the historian Constantin Moisil, the father of Grigore Moisil. The little Petre went with the father at the Numismatics Society and met Constantin Moisil, which will be useful later.

Professor Teodorescu admires his father, and he is grateful to him for all the assistance he received from his father.

As we mentioned, the young Petre, after difficult years before and during the World War II, ~~he~~ finished the Matei Basarab Lyceum in 1948. Professor Teodorescu remembers the excellent professors he had at this lyceum:

- Prof. Loghin, Romanian Language, 1940, refugee from Cernauti
- Prof. Panaitescu Perpessicius, Romanian Language, literary critic, specialist in Mihai Eminescu, founder of the Romanian Literature Museum
- Prof. Alexandru Balaci, Italian Language, specialist in Dante Alighieri and other Italian writers
- Prof. Kahane, Mathematics, 1947-48, excellent pedagogue.

When he was in the fifth grade, around 1945, his father brought him the famous Mathematical Gazette, a publication for lyceum students with mathematical inclination.

"See if you can resolve some problems from here" said the father

The young Petre worked hard, solving many problems, and even published several problems in this Gazette, and he was very proud of this success. He noticed also the name of Radu P. Voinea, whom he met later.

One day at lyceum, on the hallway, he met a professor from a parallel class, N. N. Mihaileanu, whose hobby was geometry.

"Are you Petre Teodorescu?" asked professor Mihaileanu

"Yes, I'm Petre Teodorescu."

"Look, I'm Mihaileanu, I'm redactor of the Mathematical Gazette. I noticed that you solve problems there. Would you like to talk a little?"

"Sure" responded Petre.

Professor Mihaileanu invited him home, gave him several geometry books, and under his guidance the young Petre attended various competitions organized by the Gazette.

When he was in the 8th grade, in 1948, he began to prepare for the competition of the Gazette, which was in geometry and mechanics. For mechanics, his father introduced him to Professor Alexandru Stoenescu, from the Polytechnique, a great teacher. Professor Stoenescu asked:

"Do you know German?"

"Yes."

"Could you read technical German?"

"Yes."

Then I'll give you a collection of problems by Wittenbauer-Pschl, if you solve a quarter of them, you'll succeed at the competition.

The young Petre solved more than a quarter and sure enough he took the first place. In the last number of the old Mathematical Gazette, in September 1949, the young Petre published his first article, about the triangle geometry. After that the new communist regime, from 1949, closed the Gazette, but after several years it was reopened.

Professor Teodorescu remembers with gratitude all those who assisted him to develop his scientific talents, and considers that the noble profession of educator includes, as a major reason d'être, this desire of assisting young talented students. He says that the profession of professor is the most beautiful in the world.

This reminds us of Cicero:

What nobler employment, or more valuable to the state, than that of the man who instructs the rising generation? Marcus Tullius Cicero (106 BC – 43 BC) (please see Michael M. Dediu "Axioms, Aphorisms and Quotations" and "Aphorisms and Quotations", on Amazon.com).

Chapter 3 Like Father, Like Son – Plus Mathematics

His father wanted the young Petre to become a civil engineer, like father, like son. But Petre junior wanted to study mathematics.

"What do you want to do as a mathematician?" asked the father. "What can you do?"

Therefore it was decided to take the admittance exam and then enroll at the Faculty of Bridges and Massive Structures of the Civil Engineering Institute from Bucharest.

Being student in the first year at Civil Engineering, Petre still wanted to study mathematics, and he obtained an audience at the General Secretary of the Education Ministry, who was Professor Miron Nicolescu, a great mathematician from the Faculty of Mathematics and Physics of the University of Bucharest.

"Professor Nicolescu," said student Petre, "I would like to simultaneously study mathematics, what should I do?"

Professor Nicolescu laughed and said:

"Look, I approve, you can enroll without exam, but with a condition: to pass all the exams also at the Faculty of Mathematics, in the first session."

And Petre did it! At the first exam of mathematical analysis, Professor Nicolescu said:

"The student who resolves very well one of the three very difficult problems at the written exam, will be excused from the oral exam."

When the time expired, Professor Nicolescu appeared at the door of the Spiru Haret amphitheater, where the exam was, and asked:

"Has someone completely finished one problem?"

Nobody responded but our Petre:

"Please look, I solved two and a half problems, the third one I did not have time to finish it."

Professor Nicolescu corrected himself the paper, gave him 10, and excused him from the oral exam. From that time on, Professor Nicolescu constantly advised our young mathematician Petre.

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Some ideas from America around 1965.

- Liberty was the second article of their covenant, they said. It was self-government. It was their Bill of Rights. But it was more. America would be a place where each man could be proud to be himself: stretching his talents, rejoicing in his work, important in the life of his neighbors and his nation.

- This has become more difficult in a world where change and growth seem to tower beyond the control and even the judgment of men, they said.
- They must work to provide the knowledge and the surroundings which can enlarge the possibilities of every citizen.
- The American covenant called on them to help show the way for the liberation of man. And that was then their goal. Thus, if as a nation there was much outside their control, as a people no stranger was outside their hope.

It is remarkable indeed that Professor Teodorescu decided to study also Mathematics, in parallel, and he graduated in Mathematics in 1952, and in Civil Engineering in 1953. It was not easy. For instance, the mathematical analysis course from Civil Engineering was simultaneous with that from Mathematics, which was much more advanced and taught by Professor Nicolescu, therefore the student Petre was running from the Civil Engineering to the tram-way, and then to the Mathematics Faculty to catch this important course.

When Petre was in the fourth year at civil engineering, together with other students, they decided to go to the Dean, professor Calin.

"Dean," said Petre, "we have 4 hours of courses each morning, 4 hours of seminars, projects, labs each afternoon, 6 days per week, more than 48 hours/week, it is too much, we cannot anymore."

"You know very well," responded the Dean, "that every day has 24 hours, and includes a day and a night. During the day you learn, and during the night you sleep."

Let's see now an event in 1969: an exploding fireball tore through the sky over Mexico, scattering thousands of pieces of meteorite across the state of Chihuahua. More than 40 years later, the Allende meteorite is still serving the scientific community as a rich source of information about the early stages of our solar system's evolution. Recently, scientists discovered a new mineral embedded in the space rock — one of which they believe to be among the oldest minerals formed in the solar system.

Sometimes the hard working Petre had to pass two exams – one at Mathematics and one at Civil Engineering – in the same day. If he could arrange to go to one in the morning and the other in the afternoon, it was fine, otherwise he had to kindly ask the professor to take the examination with another parallel group of students.

Now we look at the links between per capita GDP (Gross Domestic Product, Romania rank 97 from 226 countries in 2011) disparities and market access, based on the theoretical predictions of core-periphery New Economic Geography models for the Romanian regions. There is an econometric specification, which relates the income levels of a particular location with a weighted sum of the volume of economic activities of the surrounding locations (market access). Then, empirically, there is an estimate of this econometric specification for a sample of 42 Romanian regions in the year 2006. The results show that market access is statistically significant and quantitatively important in explaining cross-county variation in Romanian per capita GDP levels. Moreover, the results are robust to the inclusion of control

variables thought to be important in explaining Romanian income levels, as it is the case with human capital and innovation levels. After controlling for these variables, market access remains still positive and statistically significant, although its influence on per capita GDP levels decreases approximately 25%.

Using the same setting, it can be looked at the link between human capital and geographical location based on a theoretical model. Using 2006 data on the different educational attainment levels for the 42 Romanian regions, it can be noticed that the percentage of individuals with medium and high educational levels is affected positively by the regions´ market access. Doubling market access would increase the percentage of individuals with medium and high educational levels by 22-25%. There is also the possibility to disentangle the effects market access can have on higher educational attainment levels, by looking for the third variables that might be affecting regional educational levels, and which work through accumulation incentives. There are some policy implications to overcome the costs remoteness imposes on human capital accumulation in Romania.

After the third year at Mathematics, our Petre had to choose a specialty section for the fourth year:

"There is a section of mechanics – this is for me, I'll go right there," said Petre to himself. "I know mechanics from Civil Engineering, therefore I should try to pass this last year at Mathematics in private."

Then Petre remembered Constantin Moisil from the Numismatic Society, and kindly asked his father to ask Constantin Moisil to speak to his son Grigore Moisil, to receive him to explain what he wants to do. Finally he arrived at Grigore Moisil, and told him what he wants. Moisil laughed and asked:

"What foreign languages do you know?"

"German, French, Italian, some English," said Petre.

"Therefore you know German, very well. Then take this book of the great professor of mechanics from Vienna, K. Girkmann, and these two papers of mine about some algebraic methods, and see what you can do with the Girkmann's equations."

Our young student Petre renounced to his initial ideas, and worked really hard, and produced an original 80-page article, which was the final diploma paper at Mathematics, and was published in 1952.

The young graduate P. P. Teodorescu had to do the required military service near a small city Ramnicu Valcea, in the Carpathian Mountains, but academician Moisil went personally there, with the final form of Teodorescu's article, for the final corrections.

One who does not know all the details, could imagine this scenario:

"Sargent, where's Petrica?" asked Moisil.
"What Petrica?" replied the Sargent.
"Private Teodorescu."
"Aha, Private Teodorescu, he is washing the floors, Sir."
"Could you call him here?"
"What for, Sir?"
"He needs to correct an article."
"What article, Sir? About our military unit?" asked the Sargent with suspicion.

"No, it's about mathematics."

"You mean additions and subtractions, Sir?"

"And multiplications" added Moisil with a great smile.

"I see, then I'll call him."

The Sargent picks up the phone:

"Private Teodorescu, you boy take a short break from that floor washing and report to me at once – you did some bad mistakes at multiplications, bad boy!"

But the reality is a little different. The colonel calls the Private Petre:

"An academician came with the car in the city, at our central unit, and you need to go right away there to talk to him. I don't know what he wants from you."

Surprised Petre didn't know either. The colonel gave him his car, and finally he arrives at the central unit in the city. There, waiting for him, it was professor Moisil, with a big smile:

"My dear, the first article, which is published by a young man, it is good to be seen by himself too. Let's go to a table in the cafeteria, and I'll show you the correction symbols and other details."

There were 80 pages, therefore Peter couldn't finish all, and they were corrected by the redactors. Professor Moisil gave the soldier some cookies, and brought a photograph to take his pictures as a soldier. Professor Moisil left, it was late in the evening and the soldier Petre could not go back for two hours in the night per pedes apostolorum. He slept at the central unit and insistently asked that his unit be informed, not to be declared deserter. Only next day in the morning the soldier Petre could find a carriage to return to the military duty.

The great mathematician academician Grigore Moisil appreciated the scientific talent of the young Teodorescu and became his mentor. Professor Teodorescu always remembers with gratitude the many lessons Professor Moisil taught him.

Chapter 4 Truesdell, Moisil and other Great Professors

The well-known American mathematician Clifford Ambrose Truesdell III (1919 – 2000) wrote a favorable review on a Teodorescu's published paper in 1952, which was an unusual achievement.

Professor Teodorescu remembers, with great admiration, the other outstanding professors he had as a student: Gheorghe Vranceanu at geometry, Froda at algebra (there was a new young assistant there, Cabiria Andreian), Simion Stoilow at complex functions, Octav Onicescu, Victor Valcovici, Caius Iacob, Grigore Moisil, Tudor Ionescu at electricity, Badarau at acoustics and optics, Horia Hulubei at atomic physics, Stefan Balan, Elie Carafoli, Mitu Dumitrescu, Aurel Beles, Calin, Panaite Mazilu.

Professor Teodorescu remembers also Professor Hangan, who was not his professor, but his daughter Sanda Hangan was colleague with him and became professor at Civil Engineering; unfortunately, she prematurely died of illness. Professor Hangan's son Theodor Hangan became also professor at Mathematics.

Professor Teodorescu's academic career started in 1952, as assistant professor to Professor Aurel A. Beles, at the Mechanics and Material Strength Department from the Civil Engineering Institute Bucharest. In his office Professor Teodorescu met, finally, that good lyceum student from the Mathematical Gazette, Radu P. Voinea, who became Professor and President of the Technical Sciences Academy.

Professor Beles, like Professor Moisil, was an exceptional professor, from whom one could learn many useful scientific and practical life ideas. He had one of the best libraries at that time, and gave to the doctorand Teodorescu two very useful journals and a book, saying:

"Look, I don't know all the details, but if you read this chapter and you look through these journals, I think that it will be very useful for you."

And he was right.

Professor Teodorescu is grateful to Professor Beles for many things, firstly for giving him access to Beles' great library (to which only Professor Voinea and Mircea Soare had access too). They all were very careful to return the books in good condition.

The book cases in the library had glasses and on one of the glasses was glued a small paper, like an announcement, with some verses in which was said that many times the books which are lent either become lost, or, if not, there will always be damaged.

Professor Beles had one of the very infrequent qualities for a professor, which is that of recognizing that he does not know everything. He had a very strong practical and theoretical background, and was one of the first to teach a course of elasticity theory, with a strong mathematical content. Professor Teodorescu, being mathematician, was frequently asked by Professor Beles some difficult mathematical questions.

Here we have to repeat our aphorism:
Few people know,
How much you have to know,
To know,
How little you know.
(please see Michael M. Dediu "Axioms, Aphorisms and Quotations" and "Aphorisms and Quotations", on Amazon.com).

Then he began the teaching activity at the same Institute, but also at the Faculty of Mathematics and Physics of the University of Bucharest.

While being doctorand, in 1954, in the communist Romania began a campaign against cosmopolitism, that is against using information from the free countries (West Europe, USA, etc.). Two communists went to Moscow as doctorands, and when they returned, they attacked Grigore Moisil and his young assistants, including Petre, because they were using professional literature from the free countries, and not from the Soviet Union.

Professor Moisil had, at that time, a relative in jail, because she supported a communist leader who was purged, following the Stalin purging methods. However, because Moisil was well known and supported by many important people, he escaped and his assistants too. But Petre was severely criticized that he works with Professor Moisil and used-professional literature from the free countries, instead of that from the Soviet Union.

On June 16, 1955 Petre obtained his doctoral degree in technical science at the Civil Engineering Institute from Bucharest, under the guidance of academician Stefan Balan. In the doctoral commission was also the academician Grigore Moisil. After that Dr. Teodorescu became an assistant professor for Academician Aurel Beles.

In 1958, the young Dr. Teodorescu, for personal reasons, had a conflict with the Rector of the Civil Engineering Institute, and also he did not like the fact that some of the professors at the Civil Engineering Institute were making big scientific errors.

He told the problem to academician Moisil, who immediately reacted:

"Let's go together to the Education Department at Academician Balan."

After arranging an audience, they both went to the Education Department, and Moisil asked the assistant secretary:

"Is the Minister Balan available?"

"No," responded the assistant secretary, "he is in an important meeting."

Moisil remained calm and patient, and waited for more than two hours, together with the young Teodorescu. Finally the long meeting ended and they were received by the Minister.

"Minister," said Moisil, "your doctorand Teodorescu would like to be transferred to the Faculty of Mathematics, and I support this idea."

"Very good, my friend Moisil," said the Minister, "I approve this transfer."

And thus Dr. Teodorescu remained at the Faculty of Mathematics until his retirement in 1994. He started working at the Mechanics' Department, where department chairman was Professor Valcovici, and later Professor Caius Iacob.

He continued his collaboration with the engineers, especially with professors Panaite Mazilu and Radu Voinea.

In 1966 Professor Teodorescu received the Gheorghe Titeica prize of the Romanian Academy.

In 1970 he obtained the doctor docent title at the Faculty of Mathematics of the University of Bucharest.

From 1964 to 1990 he was associate professor at the Theoretical Mechanics Department of the Faculty of Mathematics and of Physics of the University of Bucharest, and from 1990 to 1994 he was professor in the same Department.

While Professor Teodorescu was teaching at the Mathematics Faculty, he applied for a better position, but another candidate, with many connections, applied too. When the University Senate had to decide about the winner, Professor Moisil, who was in a hospital, told the doctor:

"I need to go out to the University Senate."

"But, Professor, you are sick, it is not possible" said the doctor.

"Yes, doctor, you are right, but I need to help PP."

"Who?" asked the doctor.

"A student of mine, I'll tell you letter."

Then Professor Moisil went to PP's home:

"Give me your book and several articles."

"Yes, Professor, but you should be in the hospital…" said timidly Petre.

"I don't have time now, we'll talk later."

And the Professor went to the Senate.

"Esteemed colleagues, Teodorescu is the best candidate and here are the proofs."

However, the more connected candidate obtained one more vote. Professor Moisil returned to Petre:

"I am very disappointed, but c'est la vie. You will succeed some other time for sure."

Then Professor Moisil returned to the hospital:
"Doctor, I am all yours."

He also taught mechanics and elasticity theory in English and French.

Professor Teodorescu was also a principal scientific researcher at the Applied Mechanics Institute of the Romanian Academy (1955 – 1959) and at the Mathematics Institute of the Romanian Academy (1963 – 1969).

The Mathematics Institute of the Romanian Academy, where, between other researchers, were the Romanian President's daughter Zoe Ceausescu, and this humble author M. Dediu, was overnight closed by a presidential decision in 1975, because the President's daughter Zoe left the Institute for a small adventure, and no one knew where she went. The Institute was re-created later in a reduced format.

In this Institute Professor Teodorescu had many friends and collaborators; he even succeeded to go outside the country and met

great personalities who influenced him. For example, in Poland he met Professor Witold Nowacki, who was the president of Poland Science Academy, and told him many things from his life and who wrote many interesting books. Professor Teodorescu translated in Romanian one of his books in English.

In Austria Professor Teodorescu met Heinz Parkus, who had a doctoral thesis in the same field as his, and was the student of Professor Karl Girkmann, who was mentioned before. Professor Girkmann just died, and Parkus wanted that Professor Teodorescu to take Girkmann's place at the Research Institute as director. Even if this discussion was taking place at Vienna, Professor Teodorescu returned in Romania, where his parents lived.

In Italy, Professor Teodorescu met many distinguished personalities: Cataldo Agostinelli, Tristano Manacorda, Giulio Maier form Milan and Bruno Finzi. Bruno Finzi was the Rector at Politecnico di Milano. At that time in Italy there were only two Politecnici: Politecnico di Milano and Politecnico di Torino, all the others were Universities or Technical Faculties.

Bruno Finzi was an excellent specialist in mechanics. Professor Teodorescu continued the research and generalized some of Finzi's results. Professor Teodorescu went to Milano in 1968 and Finzi invited him at the rector residency to present a conference. When he arrived at the rector residency the students were in strike and occupied the building, so, he was taken to another building to present his conference. Professor Teodorescu has many friends in Italy and he gave talks to over 20 universities from the North of Italy to the South of Sicily, which were places very different from both scientific and cultural point of view.

In Germany he worked with Professor Hermann Schaefer from Braunschweig, who died too young, and who also wanted to retain me in Braunschweig. Herman Schafer and his younger colleague K. Günther from Karlsruhe recommended Professor Teodorescu at GAMM (Geselschaft für angewandte Mathematik und Mechanik), and now he is the President of the Romanian section.

Professor Teodorescu collaborated also with C. A. Eringen, who is a Turkish origin but worked in the United States. He wrote many remarkable books and made a connection (which Professor

Moisil liked very much) between mechanics and electricity, magnetism and other domains of physics.

Professor Teodorescu worked also with professors Mendel Haimovici and Constantin Bors from Iasi, they both prematurely died.

The year of 1973, was a bad year for Romanian mathematics, because Professors Moisil, Haimovici, and Popoviciu from Cluj and cousin of Professor Moisil, died.

Professor Teodorescu collaborated with Professor Vasile Ille from Cluj with whom he wrote three books, and who is a man of great soul purity, Professor Mircea Soare from Bucharest with whom he published a book together with Professor Ileana Toma from the Civil Engineering Institute. Unfortunately the book appeared two weeks after the death of Mircea Soare, and it was re-published in 2007 in a revised edition at the Springer Publishing House.

Professor Teodorescu also collaborated with Professor Wilhelm Kecs from Petrosani with whom he wrote many articles and several books. One of the books was translated in English and another one, to his great pride, was translated without the approval of the Romanian Technical Publishing House, in Russian. At that

time Russia was not in the international convention regarding the copyright. They only wrote him and ask him to add more pages. Professor Teodorescu completed about one hundred pages and appeared in Russian at the Mir Publishing House, being under the care of one of the great Professor of elasticity theory, the chairman of the elasticity theory department from the Lomonosov University from Moscow.

Professor Teodorescu is very proud and happy to collaborate with his previous doctorands, or for whom he was in their doctor commission, and with whom he wrote many research papers: Ileana Toma, Veturia Chiroiu, Nicolae-Doru Stanescu, and many, many others.

Professor Teodorescu remembers Professors Elie Carafoli, Mircea Mihailescu and Augustin Petre.

He is Doctor Honoris Causa of Transylvania University from Brasov (2002), Ovidius University from Constanta (1999), and of Pitesti University.

From 1999 he is full member of the Technical Science Academy of Romania, and from 2002 he is the president of the Technical Mechanics Section and member of the Presidium of this Academy.

Also from 2002 Professor Teodorescu is the President of the Romanian Section of the German Gesellschaft fur Angewandte Mathematik und Mechanik. He is honorific senator of the Technical University of Moldova from Chisinau, from 2000.

Under his guidance, 26 specialists obtained their doctoral degree in mechanics.

Professor Petre P. Teodorescu has a very impressive scientific activity, including 28 books published in the United Kingdom, the Nederland, Russia, Germany and Romania.

Also he published 257 scientific papers in specialized journals from USA, Germany, France, Austria, Italy, Belgium, Poland, Czech Republic, Hungary, Serbia, Greece, and Romania. Excellent reviews of his papers appeared in Mathematical Reviews and other specialized publications.

Professor Teodorescu is a member of the American Mathematical Society and other 7 professional societies, and a reviewer at Mathematical Reviews and other two reviews journals. He is a member of the redaction committee of 5 publications.

Professor Teodorescu organized and presided over many conferences from 1977, including those at the Transylvania University from Brasov, with Professor Sorin Vlase as the local Chairman. He was invited at many universities and research institutes from several countries.

On June 21, 2011 Professor Teodorescu received, at the splendid Romanian Athenaeum, the Henri Coanda prize for applied sciences from the Romanian Academy, with the Academy President Ionel Haiduc as the Chairman of the prize committee.

Professor Teodorescu emphasizes the importance of a multi-disciplinary activity, because these days it is essential to be able to use different branches of sciences and technology, in order to achieve important results. A recent example is the results obtained by researchers specialized in quantum physics, mathematics and plant biology, who used ultrafast spectroscopy and mathematical algorithms to see what happens at the subatomic level during the very first stage of photosynthesis.

Professor Petre P. Teodorescu is a remarkable European personality, with outstanding human qualities.

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