



PETRE GÂȘTESCU: FOUNDER OF THE ROMANIAN LIMNOLOGICAL SCHOOL

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Professor dr. Petre Gâștescu was born in Moldavia-Romania on November 13, 1931 in the village of Soci, Miroslăvești commune, Iasi County. His high school education was completed in Iași (the Theological High School “Veniamin Costachi”) and Pașcani (the Theoretical High School of Pașcani), and was followed by university studies at the Faculty of Geology-Geography, the department of Geography of the University from Bucharest, from where he graduated in 1955 obtaining a **merit diploma**. He defended his doctoral thesis on the topic “*Lacurile din România - geneză și regim hidrologic*” (The Lakes of Romania – Genesis and Hydrological Regime) at the University of Cluj in 1961 and obtained the title of PhD (dr.habil) defending the thesis “*Lacurile din România - limnologie regională*” (The Lakes of Romania – Regional Limnology) in 1971 at the same University.

During the over 50 years of scientific and teaching activity, the university professor PhD, Petre Gâștescu has consistently promoted the scientific research in the domain of hydrology, and especially in **limnology**, diversifying at the same time the preoccupations related to the Danube river, the Danube Delta and Black Sea coast. Being a very good organizer, first of the research team and of the physical geography laboratory and then of the Institute of Geography, and at the same time a good researcher, he managed to extend the array of scientific preoccupations and at the same time to competently and professionally continue and valorize the already existing research. The numerous issues he has researched can be grouped into several important directions.

The domain of limnology has been the most important target towards which he directed his intellectual efforts, as, at the moment when he began his research, this domain

had been hardly studied in Romania. His involvement in this domain of research has been, from the start, a success both concerning the approach of the issues related to it, and in point of the research methodology and analysis, and of the result interpretation.

The research in the field, on different lakes, was minutely organized and achieved in order to obtain new information, and the analysis of the already existing cartographic and archive materials, completed with the existing literature of this domain, shaped up the first doctoral thesis in limnology, published in 1963 under the title: "*Lacurile din România – geneză și regim hidrologic*" (The Lakes of Romania – Genesis and Hydrological Regime).

We need to mention from the beginning that during his entire activity, professor Petre Gâștescu has considered the lake to be an *open system*, in which there are permanent exchanges of matter and energy with the environment, which situates him at the level of the most recent conceptions existing nowadays worldwide in scientific research.

The complexity of the themes he approached, the use of new and modern methods of analysis concerning the genesis of lake depressions and the lakes' hydrological regime as well as their principles of classification have constituted models to follow and a substantial impulse for new limnological research works not only in Romania but also internationally, his work being very well received at this level. Consequently, in the universities from Cluj, Iași and at the Geographic Institute of the Romanian Academy, a series of regional research works have been continued and, finally, many valuable works have been achieved, so that we can state that professor Petre Gâștescu is the **founder of the Romanian school of limnology**.

His main preoccupations in this research domain can be grouped as follows:

Genesis of the lake depressions and lake classification has been a major issue of the limnological research, which had not been systematically approached before and which was developed not only at the level of Romania but also internationally, the materials that have been published being very eloquent in this sense. Analyzing the *lake ecosystem* as a systemic unit, he is part of the newest modern conceptions promoted in geographical and biological research. From the innovative results of his research we will recall only the realization of a correlation between the water depth curve and the genetic types of lakes, the realization of the map of the genetic types of lakes of Romania, the classification of the lakes according to the origin of the lake depressions and on large relief units.

The hydrological balance and regime analyzed as main elements of the lakes' existence have been followed both in time, regarding their monthly, seasonal, annual and multiannual variation, and in space, from the glacial lakes to the lakes of the Romanian Plain and those of the Danube Delta. Among the special problems, we note the definition of the *lake surface index*, as ratio between the lake's surface and its drainage basin, according to which it is possible to record lakes with an *exceeding, balanced or deficitary* balance sheet. For the lakes of the Danube Delta, he made a lot of measurements and determinations of the balance sheet elements in order to highlight the relations between

the canals and the lake units according to the hydrological regime phases of the Danube River.

The thermic regime of the lakes' water, another main element of the lake ecosystem has also been minutely studied with all its aspects related to the time and space variation. In this sense, representative lakes have been chosen and, based on direct measurement, the research works studied the thermic regime variation during the year, from the daily regime to the series of seasonal phases and depending on the altitude. Really interesting for practice have been the observations and measurements achieved on salty lakes in order to highlight the *heliothermic layer* and the persistence of slightly higher temperatures during winter, extremely important phenomena for their uses in spa treatment and even for stocking thermic energy. The research was continued in order to find out the dimensions of the existing heliothermic layer for about 34 out of the 69 salty lakes of Romania.

The lakes' hydrochemical features, studied only sporadically previously, have been analyzed systematically, according to the variation of the mineralization degree, to the *hydrochemical transformation* type and processes, according to the seasonal variation of the climatic conditions, to the lithological substratum and the alimentation sources. For a detailed knowledge on the mineralization degree, the data from the hydrological and spa archives and other published works have been processed and interpreted, along with other data coming from other samplings in the field that were analyzed in specialized laboratories. This data basis allowed the highlighting of certain general particularities of the hydrochemical features throughout the country and a series of special aspects like the variation of lake ice and water chemistry or of the relations between the chemistry of lake waters and that of the underground waters from the NE Romanian Plain. The results, which are extremely valuable, have been integrated in different articles, in the work "*Lacurile din România. Limnologie regională*" (The Lakes of Romania. Regional Limnology) (1971), in "*Tratatul de Geografia României vol. I – Geografie Fizică*" (The Treaty of Romanian Geography – tome I – Physical Geography) (1983) and in many other publications issued in Romania and abroad.

The anthropic lakes, as a principal instrument of rational water management, have been a traditional preoccupation in Romania. However, Romania's socioeconomic development brought about an increase of their diversity, number and size, and of their implications on the environment, aspects that have been highlighted in many of the articles that were published so far. Among the innovative aspects, we note the fact that the anthropic dam lakes were classified according to the *water renewal index*, which is a good indicator to see to which extent they meet the requirements of a lake ecosystem.

The scientific results published in Romania and abroad as articles and independent books have had a large audience being appreciated by international personalities of the limnological domain, like: Riccardo Riccardi, Maurice Pardé, René Frécaut and others, and led to his election as a contributor member of the Italian Geographic Society.

The problem of the **lake ecosystem** and of the *limnological typology* was approached at the Colloquium of physical limnology (1970) organized by the Institute of Geology-Geography of the Romanian Academy. In his communication, he presented *Probleme privind tipologia limnologică* (Problems Related to the Limnological Typology) (The works of the Colloquium of Physical Limnology, the Institute of Geology-Geography, 1970) defined the *lake ecosystem* as *an entity of the continental water world made up of a physical environment (biotope) and an organic environment (biocenosis), being in a close relation which is based on the energy accumulation processes through photosynthesis and degradation processes (through exothermic reactions) and whose result is a certain quantity of biomass.*

The biomass of an ecosystem can be considered the means that conveys the energy received from space and introduced into the lake (*Dicționar de Limnologie* [Limnological Dictionary], Edit. H.G.A., București, 2000, P. Gâștescu). Further on, this definition highlights the fact that the *biotope* includes the lake depression, the water with its physical features (temperature, density, transparency etc.) and chemical features (dissolved elements, oxygen, pH, salts etc.) and the *biocenosis* includes the biotic totality, from bacteria to mammals, both the vegetal and the animal regnum. The study of this aspect continued afterwards in different articles and synthesis works (*Relațiile dintre ecosistemele lacustre și ecosistemele terestre înconjurătoare* [The Relations between the Lake Ecosystems and the Surrounding Land Ecosystems], in the tome *Ecologie și protecția ecosistemelor* (Ecology and Protection of the Ecosystems], Pitești, 1980). The lake ecosystem, given its relations to the environment, its multifold exchange of matter and energy (water, air, land, geological substratum, flora and fauna, anthropic input and output) constitutes an *open ecosystem* (P. Gâștescu 1970, 1979, 1980, 1998).

The limnological type is the reflection of the lake ecosystem, of its content and evolutionary phase as such. The lakes that are included in a certain kind of limnological type need to have the same degree of development (evolution) and the same dynamics of their phenomena, all these being expressed through a certain biohydrocenosis (P. Gâștescu, *Problèmes concernant la typologie limnologique*, RRGGG-Géographie, 14, 2, 1970). The article mentioned above drew as well the attention of certain foreign specialists. We can quote from a personal letter addressed to professor Petre Gâștescu on December 7, 1973, by Pierre Hubert, who at the time was a research worker at the Centre d'Informatique Géologique, École Nationale Supérieure des Mines de Paris, being at present secretary general of IAHS (International Association of Hydrological Sciences): *"Monsieur, c'est avec beaucoup de satisfactions que je viens de lire votre article - Problèmes concernant la typologie limnologique - paru en 1970 dans la Revue Roumaine de Géologie, Géophysique et Géographie. J'y ai trouvé des réponses à nombre de mes préoccupations. J'ai travaillé sur des aspects physiques de la limnologie du Léman (lac de Genève), un peu isolé dans une "communauté" limnologique presque uniquement préoccupée de biologie. Votre article m'a confirmé dans mon projet d'entreprendre un bilan thermodynamique du Léman. Je dois parallèlement entreprendre une étude globale des*

grands lacs de Savoie, qui est au fond une étude de nature typologique. Là encore la méthodologie qui vous proposez me sera très utile ..." We can therefore keep in mind the concept of limnological type, which relied on the lake ecosystem, which a geological engineer preoccupied with the research of lake Léman valued particularly, though on the respective topic numerous works had been published, for instance F.A. Forel alone, the founder of limnology, having published three tomes between 1892-1904.

Problems of terminology were the focus of the doctoral thesis of the university professor PhD, docent Petre Gâstescu; they were later continued by means of articles and synthetic works (*Lacurile din România. Limnologie regională* [The Lakes of Romania. Regional Limnology], 1971, *Lacurile Terrei* [Terra's Lakes], 1979), university courses (*Limnologie și oceanografie* [Limnology and Oceanography], 1998), and the work *Dicționar de limnologie* [Dictionary of Limnology], 2000. In essence, these works treated the following topics – what a **lake** ("lac"), a **pond** ("baltă"), a **swamp** ("mlaștină") is, if there is a connection, a succession in the evolution of a lake, what dimensions are required for a stationary water to be considered a lake, etc.

For this reason, it was necessary to mention that the dimensions (surface and depth) are not limitative, but the relatively stagnant water character defined the lake compared to moving waters (here we refer only to continental waters).

The lake definition goes as follows: *a relatively stagnant body of water, situated in a depression of the terrain, which is not directly connected to the Planetary Ocean, including all the water surfaces of this kind, beginning with little ones of just several scores of square meters up to the big ones of scores and hundreds of thousands of square meters.*

The term of *baltă* has two meanings in Romania: the first is that of lake in the floodable waterside of the Danube and of the main interior rivers, with variable surfaces, depending on the river's hydrological regime, with a small depth, partially or totally covered with water vegetation; the second meaning of this geohyronym is part of the Romanian toponymy, being used by the inhabitants of the Danube waterside, designating the large floodable waterside, with its numerous lakes, backwaters, marshy lands (e.g. Balta Ialomiței, Balta Brăilei, which are nowadays dried and dammed).

Another interpretation for the term "baltă" is that of intermediary phase of evolution for a lake towards swamp and marsh.

Limnological issue as scientific branch interested in the study of the lakes has constituted, beside the research of the set of aspects concerning the abiotic side of the lake ecosystem, a continual dispute (as we could call it) with the "opposite" party, namely the biologists who study the biotic side of the same ecosystem. The dispute, not only in Romania, but also internationally, is given by the fact that the biologists, beginning with A. Thienemann and others, created at Kiel, Germany, in 1922, *The International Society of Limnology* (SIL) whose goal is the hydrobiological study of the continental waters (initially only the sweet ones, then the salty ones as well). In this context, limnology is no more the

complex science concerning the lakes as founded by the biologist F. A. Forel towards the end of the 19th century, obviously according to the biologists' conception.

On this issue, there have been discussions during two limnological colloquia: one organized by the Commission of Hydrology of the Romanian Academy in 1967, whose communication *Limnologia, știința despre lacuri* [Limnology, the Lake Science] produced reactions and replies from the biologists; the second colloquium was that of Physical Limnology, organized by the Institute of Geology - Geography of the Romanian Academy in 1970, where prof. Petre Gâștescu presented the communication *Probleme privind tipologia limnologică* [Problems concerning the Limnological Typology] where he outlined the domain of research of physical limnology, namely the aspects that refer to the abiotic side of the lake ecosystem.

So, in the conception of prof. Petre Gâștescu, limnology is the lake science, a boundary science situated between geography, hydrology and biology, from which it borrows some of its research methods (P. Gâștescu, *Limnologia-știință de graniță între geografie, hidrologie și biologie* [Limnology, a boundary science situated between geography, hydrology and biology], in the magazine "Progresele științei", 3, 1972). In this conception, limnology has two sub-branches: one called **physical limnology (limnogeography)**, which studies the **lake biotope** (the **depression** and the **water**) and one called **biological limnology (limnobiology)**, which studies the biohydrocenosis (the lake biocenoses). As the biotope and the biocenosis of a lake make up an entity, the lake represents an open system, also called **limnosystem**, a true microcosm, according to the comparison of the American biologist St. A. Forbes, 1887 (P. Gâștescu - *Lacurile Terrei* [Terra's Lakes], Ed. Albatros, 1979, P. Gâștescu - *Limnologie și oceanografie* [Limnology and Oceanography], Edit. H.G.A., 1998, P. Gâștescu, *Dicționar de limnologie* [Dictionary of Limnology], Edit. H.G.A., 2000).

Through the articles he published in the specialized magazines of the Romanian Academy and his works of synthesis, also published at the Publishing House of the Romanian Academy, which have been exchanged with other works from numerous institutions from the same domain worldwide, it was possible to disseminate results and conceptions on the lakes and on limnology, which have been received and commented internationally, as we will show below.

The first comments on the works of prof. P. Gâștescu in the lake domain have been made based on the chapter on lakes from the *Monografia geografică* (Geographic Monograph) of 1960, on the comprehensive article published in *Probleme de geografie* (Geographical Problems), tome VIII, 1961, entitled *Tipuri genetice de lacuri din R.P. Română, după originea cuvetei lacustre* (Genetic Types of Lakes in the Popular Republic of Romania, according to the Origin of the Lake Basin). These materials have been reviewed by the distinguished professor Riccardo Riccardi, editor of the Bulletin of the Geographic Italian Society (Bollettino della Societa Geografica Italiana), the issue of 1961, entitled *I laghi della Romania* (p. 407-409) et par le couple Maurice Pardé, chaire de Botanique, Faculté des Sciences de Grenoble – internationally famous hydrologist, and

professor René Frécaut, Institute de Géographie Nancy, France, under the title *Étude roumaine de limnologie* in *Revue Géographique de l'est*, Année 1963, Tome III, No. 4, p. (440-444).

Riccardo Riccardi as well as Maurice Pardé and René Frécaut will be back with reviews and appreciations on the next works of professor P. Gâștescu. So, in 1965, appear two reviews concerning professor Gâștescu's doctoral thesis published by the Publishing House of the Romanian Academy in 1963 - Riccardo Riccardi in *Bollettino della Societa Geografica Italiana* (1965, p. 301-302) and René Frécaut in *Revue Géographique de l'est*, Année 1965, Tome V, No. 4, (p. 547-549). The latter entitles his review *La limnologie roumaine et ses problèmes d'après P. Gâștescu* and, after making a summary of the chapters, he finally highlights: "*Il est à souhaiter que des recherches d'hydrologie lacustre aussi précises et savantes se développent dans de nombreux pays. Le travail de P. Gâștescu dépasse largement le cadre des lacs roumains et témoigne de la remarquable vitalité de la jeune école de limnologie roumaine.*", praising the competence of the Romanian limnological school. Later on, after the publishing of the work *Lacurile pe glob* [Lakes on the Globe], P. Gâștescu, Edit. Științifică, 1969, the same reviewer professor Riccardo Riccardi makes a presentation of this work in *Bollettino della Societa Geografica Italiana*, 1971 (p. 557-558), and the General Ordinary Assembly of March 26, 1975 elects him to be a **contributor member of the Italian Geographic Society** with the following appreciation: "*Petre Gâștescu, professore di geografia al Universita di Bucarest, uno dei maggiori competenti del mundo in fatto di limnologia autore, fra l'altro, di un'opera su tutti i laghi della Terra*".

We also need to mention that reviews on the works of professor P. Gâștescu have been made as well in "Izvestia Akademii Nauk" SSSR-Seria Ghegraficeskaia, 3, 1973 (p. 133-136) and in several magazines in Romania, not to mention the quotations from the bibliographies of many articles, works of synthesis, university courses of many geographers and of other specialists.

Hydrogeographic research. Defined as a comprehensive science about waters, studying their distribution in time and space and the relations of the water resources with the other natural and socioeconomic factors, hydrogeography constituted a direction of research for whose promotion professor Petre Gâștescu made constant efforts. Starting from the definition of this notion by R. Keller (1962), V. Mihăilescu (1968) and from the methodology used by the schools of France and Poland, he enriched this domain both through direct team research and by promoting his concepts in the Institute of Geography and by directing doctoral theses on this scientific topic. The results have been debated in several national reunions, included in the work "*Geografia Văii Dunării Românești*" [The Geography of the Danube's Valley in Romania] (1969), or published as articles, with professor Petre Gâștescu as only author or as part of a research team.

Regional research. Beside the national research work, a special place in the activity of professor Petre Gâștescu is held by regional research, especially concerning the south-east of Romania (the Romanian Plain, the Danube Delta and the Black Sea coast).

Among these, he gave a special attention to the *Danube Delta*, where the research in the field began in 1960 and he continues even at present with the same desire of discovering new aspects of the existing relations between the environmental components.

He has studied minutely the hydrological balance sheet of some lake complexes such as Matița – Merhei – Bogdaproste, Roșu – Puiu – Lumina and others, and the relations between them and the main branches of the Danube. Through flow measurements, and the determination of the water's direction in backwaters and canals, it was possible to determine the thresholds where the water changes its sense of circulation towards the lakes during high flow and from them towards the Danube branches during the low flow. Based on the hydrological balance sheet and on the flows present in the backwaters and canals it was possible as well to determine the renewal index for the water of these lakes, an essential element in the eutrophication process and concerning the fish fauna of the Danube Delta's inner lakes.

A preoccupation with special results is that of mapping the Danube Delta, which in time has gone through serious modifications, determined by the creation of agricultural and reed enclosures, fisheries and forestry areas. All these, together with their corresponding toponymy, were represented on the map published in 1983 on a 1:75 000 scale, reviewed and reprinted on a 1: 150 000 scale in 1986, 1992 and 2001, 2004, 2007, with texts in Romanian, French, English and German (for some of the editions).

After 1989, the involvement of professor Petre Gâștescu in this area which in 1990 was declared a Biosphere Reserve, has been even more complex, as beginning with 1990 he has been a founding member and a member of the Scientific Board of the Danube Delta Biosphere Reserve and, since 1995, he coordinated the Atlas of the Danube Delta Biosphere Reserve, an activity which resulted in the publication of several articles and of the work *Delta Dunării - rezervație a biosferei* (The Danube Delta – A Biosphere Reserve) 2006, 2008 (editors Petre Gâștescu and Romulus Știucă). The research program on the biosphere Reserve included as well the realization and publication of a series of thematic maps, of which we note the map of the Danube Delta ecosystems, achieved in collaboration. Professor P. Gâștescu is the initiator of the most important international scientific event proposed and organized in Tulcea in July 1999 by the National Institute of Research-Development Danube Delta (Institutul Național de Cercetare-Dezvoltare Delta Dunării) and the Geographic Institute, entitled "*The Delta's State-of-the-art, Protection and Management*", which played an essential role concerning the improvement of the knowledge on the Danube Delta internationally.

The Black Sea coast situated between the Razim-Sinoie complex in the north and Mangalia in the south with the littoral lakes, the coastal morphodynamics and the management aspects have constituted professor Gâștescu's concern for the last ten years of research. The lakes from this area were analyzed for: the genetic aspects of their basins, their hydrological balance sheet, the lakes' hydrochemical features, the lakes' uses and actual management problems.

The seacoast morphodynamics was analyzed in relation with the tendency of slow increase of the Black Sea level (0.18-0.2 cm/year), with the significant reduction of the Danube's alluvial deposits from 58.7 mil. t/year between 1921-1980, to just 28 mil. t/year between 1980-1990 and with the hydrotechnical constructions such as the dam from Sulina and the one from Capul Midia, which triggered the modification of the trajectories of the coastal currents. Under these circumstances, the Romanian coastline goes through abrasion processes on about 60% of its length, while the accumulation processes manifest themselves on just 40% of its length. These processes' evolution in time has also been visible from the analysis of the cartographic maps recorded in time by different specialized organs.

Knowing very well the problems related to the sea coast, in 1991 he accompanied the specialists of the World Bank on the Black Sea Coast, and the following year he took part in a specialization course in the United States. At present he is a member of the Littoral Commission ("*Comisia Litorală*") created following a Governmental Decision. In problems of marine coast, he has represented Romania in several international manifestations from USA, Italy, Holland, with valuable papers related to the Romanian seacoast management.

The materials resulted from his research activity have been presented in time in numerous conferences both in Romania and abroad (Sweden, France, Ukraine, Great Britain, Russian Federation, Finland, Slovakia, Bulgaria, USA, Italy, Armenia, Holland, etc.).

His teaching activity began in 1994, when he became titular professor at "Valahia" University of Târgoviște, a state-run university created in 1992.

Before this year (1994), he was involved in higher education on several occasions. So, in 1970, he applied for the position of lecturer, which he obtained at the three-year studies module of the Pedagogical Institute of the University from Bucharest. Though he taught there for three years the courses *The continents' physical geography* and *Biogeography* and *Pedogeography*, he did not move to this institution, continuing to work for the Institute of Geography.

Between 1975-1989, when the Institute of Geography was integrated into the University of Bucharest, he held a series of lectures. In this sense, he was invited to hold some courses of *Romanian Geography* by the professors Valeria Velcea and Grigore Posea, and of *Hydrology* by the professors Aurora Posea, Ion Pisota, Valer Trufaș.

From 1992 to 1995, he was a professor and dean at the University "Dacia" from Buzău, a private institution where he held the course of *General Hydrology*.

At "**Valahia**" University of Târgoviște, where he was invited by professor dr. Vasile Cucu, dean of the Faculty of Humanities, he taught the courses of *General Hydrology*, *Limnology and Oceanography*, *Regional Geography of Romania* beginning with 1994. Beside these main classes, he held optional courses of *Hydrological Calculations and Syntheses*, *The Ecology of Human Settlements*, *Environmental Management*, the last one for the master created in 1999.

Beside his teaching activity, he also directed numerous license papers at the specializations of geography and history-geography, he coordinated the summer practice and different applications with the students.

A side of his activity at "Valahia" University is represented as well by the *scientific research based on contracts*. So, during the period 1996-2001 he was project director for two contracts, each having three annual phases, namely: *Starea mediului și dezvoltarea durabilă a așezărilor umane cu referire la județul Dâmbovița* [Environmental Condition and Sustainable Development of the Human Settlements with Reference to Dâmbovița County] (1996-1999) and *Studiul geografic al resurselor de apă din România în concepția dezvoltării durabile* [The Geographic Study of Water Resources in Romania in the Perspective of Sustainable Development] (1999-2001), contracts financed by the Ministry of Education and Research, The National Board of Scientific Research of Higher Education (CNCSIS). At the same time, within the program TEMPUS-PHARE, initiated by the European Community during the period 1995-1998 he took part in the research – *Gestion et protection de la ressource en eau* coordinated by the Technical University of Constructions from Bucharest – coordinating professors Radu Drobot, Romania, and Jean-Pierre Carbonnel, France. Based on the funds obtained from the TEMPUS program and the CNCSIS contracts, the faculty was endowed with computers, printers, scanner, and other devices for the laboratory of meteorology and hydrology. The TEMPUS program endowed the library as well with about 30 titles of hydrological works, in a number of several copies for each of them.

The participation of the Institute of Geography and of "Valahia" University in the program of collaboration between the University "Aix-Marseille I – France" and the Institute of Geography of the Romanian Academy *Reseau Formation – Recherche - Europe Centrale et Orientale* with the theme *Studii climatice comparative între laboratorul Mării Mediterane și Mării Negre* (Comparative Climatic Studies of the Mediterranean Sea and the Black Sea Laboratory) allowed the lecturer PhD student Ovidiu Murărescu and the scientific researcher Monica Dumitrașcu to participate to a specialization period of 5 months respectively in 1997-1998 and 1999 in France, Aix-en-Provence.

In order to meet the need for courses of the students from "Valahia" University, he prepared and published the following materials: *Hidrologie* [Hydrology] Edit. Roza Vânturilor – Târgoviște, 1998 (328 p.); *Limnologie și Oceanografie*, [Limnology and Oceanography] Edit. H.G.A. București (1998) (214 p.) via the TEMPUS program; *Dicționar de Limnologie* [Dictionary of Limnology], Edit. H.G.A. București, 2000 through the program *Ingineria resurselor de apă* (The Engineering of Water Resources) both at the Technical University of Constructions from Bucharest, coordinated by the professors Radu Drobot and Jean Pierre Carbonel; *Oceanografie* (Oceanography) (in collaboration with Ovidiu Murărescu and Petre Brețcan), Edit. Transversal 2004, Târgoviște, (129 p.).

Beginning with 1994, as associate professor of the University of Bucharest, the Faculty of Geography, on the initial invitation of professor Vasile Cucu and, later on, of professor George Erdeli, he taught the courses – *Ecologia așezărilor umane* (The Ecology

of Human Settlements) and *Economia și managementul mediului* (Environmental Economy and Management) for the specialization Știința mediului (Environmental Science) and for the master degree *Modelarea sistemelor de așezări urbane și rurale* [Modeling of Urban and Rural Habitat Systems], and he held lectures on *Dezvoltarea durabilă a așezărilor urbane și rurale* (The Durable Development of the Urban and Rural Settlements). In this context he published at the Publishing House of the University from Bucharest, in 1998, the course *Ecologia așezărilor umane* (The Ecology of Human Settlements), and at the Publishing House SFINX 2000, Colecția Didactică, in 2001, the course *Managementul mediului* (Environmental Management).

Since 2002 and at present he has been an associate professor at the **University Hyperion from Bucharest**, on the invitation of Professor Vasile Cucu, teaching the courses of Hidrologie generală (General Hydrology), Geografia regională a României (Romania's Regional Geography), Ecologia așezărilor umane (The Ecology of Human Settlements) and Gospodărirea apelor (Water Management).

The **activity of geographic information** took place continually, both through the publication of works of interest for a large audience, such as: *Lacurile Terrei* (Terra's Lakes); *Insulele Terrei* (Terra's Islands); *Fluviile Terrei* (Terra's Rivers) and of articles in different magazines and daily newspapers as well as by radio broadcasts or as course director on the theme *Fragile ecosystems* at the Black Sea Summer University.

His special professional qualities have made him remarkable in his quality of redactor in the editing boards of the specialized magazines *Studii și Cercetări de Geografie* (Geographic Studies and Research) *Revue Roumaine de Géographie* (Romanian Geographic Review) and *Hidrotehnica* (Hydrotechnics). In the editing committees of the *Atlasului Geografic Național* (National Geographic Atlas), of the *Tratat de Geografie* (Geographic Treaty) and of the collection *Județele Patriei* (The Country's Counties), he has had a special contribution thanks to his qualities of good specialist and organizer. As vice-president of the Paleogeography Commission of the International Association of Scientific Hydrology (IASH), secretary and vice-president of the National Geographic Committee (Comitetului Național de Geografie), member in the Commissions: *Monumentelor Naturii* (Natural Monuments), de *Limnologie și Ecologie* (The Commission of Limnology and Ecology) of the Romanian Academy, he made continuous efforts to promote geography in interdisciplinary research.

As **doctoral coordinator at the Institute of Geography of the Romanian Academy**, since 1972, he has guided many doctoral students, of whom 23 obtained the title of doctor in geography and 18 are in different stages of their doctoral formation. One of the doctoral theses was achieved and supported in co-tutorship with the University Aix-Marseille I from France. As specialist, he was called to be referent for about 80 doctoral theses at the Institute of Geography of the Romanian Academy, at the Universities from Bucharest, Iași, Cluj-Napoca, Galați, he has been part of commissions involved in the promotion of researchers from the Institute of Geography or in commissions involved in the

promotion of the teaching staff from the Universities of Bucharest, Iași, Cluj-Napoca, Craiova, Galați, Constanța, Timișoara, Oradea and Suceava.

His over 300 articles and books published in the country and abroad, on his own and in collaboration, his membership in 11 national specialized societies, committees and commissions and in 10 editorial committees of certain specialized magazines and many others are illustrative of his important role in the consolidation of the prestige of the Romanian geographic research nationally and internationally.

In his entire activity, professor Petre Gâștescu was remarked for his perseverance, as basis of success, for his toil, which gives birth to glory, for order, which delivers the thinking, for his consciousness and professionalism, his target being to accomplish a well-done job. Exigent first of all with himself, he has never hesitated to help those around him, patiently listening to their pains and sincerely rejoicing at the accomplishments of his colleagues.

His rich scientific activity and his remarkable personality in Romanian geography have been the arguments for which professor Petre Gâștescu was awarded, in 2001, the diploma of **professor of honor of the University "Alex. I. Cuza" from Iași (2001)**, the **meddle and diploma of excellency "S. Mehedinți"** of the Faculty of Geography of the University from Bucharest (2001), the title of **"doctor honoris cauza"** of the University "Ștefan cel Mare" from Suceava (2002), the **diploma of honor of the Faculty of Geography of the University "Babeș Bolyai" from Cluj (2001)**, the **diploma of excellency of the Geographic Society of Romania (2001)**, the **diploma of honor of the Institute of Geography of the Romanian Academy (2001)**, and the diploma of **"doctor honoris causa"** of "Valahia" University of Târgoviște (2008).