# TIBERIU POPOVICIU

## — PROFESSOR AT THE UNIVERSITY OF IAȘI —

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The academic work carried ot by Tiberiu Popoviciu, so varied in range and rich in content, constituted the subject matter for several authors [1], [3], [4], [9]. Until recently, we had been so much used to seeing him among us and we never thought that the moment would come so soon for a systematic analysis of his work and a stock-taking of the so soon for a systematic analysis of his work and a stock-taking of the valuable scientific heritage which Tiberiu Popoviciu has bequeathed us. Hoping that the data and testimonies gathered in this paper will help the future biographers to achieve a thorough picture of Tiberiu Popoviciu's life and work, we set ourselves the task of bringing our modest contri-bution regarding the Iași period of his career.

Since we live in Iași, we consider this to be our duty, all the more so, as the information and references concerning the activity T. Popoviciu carried out at Iași University are very scarce, if not completely missing in the above-mentioned sources (as unfortunately is the case with the Year Book of "Al. I. Cuza" University in Iasi for the period 1939—1959).

At the same time, these data and testimonies are looked upon as a contribution to the history of mathematics in Iași and of Romanian mathematics.

We wish to express our deep gratitude to our colleagues who have kindly furnished us these data and testimonies : Prof. Dr. Florica Câmpan, Prof. Dr. Al. Climescu, Prof. Dr. O. Costinescu, Prof. Dr. I. Creangă, Associate Professor T. Drăgănel, Prof. Dr. Gh. Gheorghiev, Assistant Professor Tatiana Grindei, Prof. Dr. A. Haimovici, Prof. Dr. D. Mangeron, Prof. Dr. N. Negoescu, and Assistant Professor Vl. A. Sciurevici. We also thank the Registrar of "Al. I. Cuza" University for having located and placed at our disposal, archive documents. Our special thanks go to Associate Professor T. Drăgănel from Iași, a former assistant to T. Popoviciu between 1942 and 1944, for the large amount of information furnished, concerning the way in which T. Popoviciu organized the course and the seminar.

## Main data concerning the period 1942—1946

T. Popoviciu was appointed a full Professor of the *Theory of Func-tions*, with the Faculty of Sciences, Iași University, on September 1, 1942 (Decree nr. 2928/1942). The Ministry of National Culture brought

this appointment to the attention of the University Rectorship through letter Nr. 135626/1942. The Rectorship specifies that T. Popoviciu is to be paid as an Associate Professor and will receive his salary as a full professor as soon as the budgetary possibilities allow it. In the meeting of the University Senate of September the 24th, 1943, Tiberiu Popoviciu is appointed as of October 1, 1943, administrator of the assets bequeathed to the University.

In the meeting of the University Senate on November 27, 1944 (Minute nr. 3) T. Popoviciu is appointed member on the auditing comission in the place of Professor Ilie Popa, appointed Prorector. The University Senate, in the meeting of June 16, 1945, takes note of T. Popoviciu's resignation from the auditing commission (Minute nr. 6).

In the meeting of the auditing commission on June 23, 1945 (Minute nr. 7) T. Popoviciu is proposed President of the Student's University Office. In the meeting of July 14, 1945 (Minute nr. 8), the University Senate ratifies the recommendation of the Advisory Commission for this appointment. In the meeting of December 19, 1945, The University Senate discussed T. Popoviciu's application for resignation from the function of President of the University Office, beginning with January 1, 1946.

On October 1, 1946, T. Popoviciu is transferred to the Faculty of Sciences, University of Cluj, by decree Nr. 2372/1946.

We are also to mention here the fact that for a while professor T. Popoviciu co-ordinated the direction of the Astronomic Observatory of Iaşi University as well.

In April 1945, T. Popoviciu was granted Grade II (salary increase).

## His Teaching Activity

In the four years (1942—1946), Professor Tiberiu Popoviciu taught a course on the *Theory of Functions* (of complex variable) the context of which is partially known from the note-book offered to us by Assistant Professor Vladimir Sciurevici.

From the testimonies of the former students and members of the Department of Mathematics there is evidence that Tiberiu Popoviciu also taught a general course of *Mathematics* for the students of the Departments of Mathematics, Physics and Chemistry, as well as an elective course of *Number Theory*, attended by some students and some younger assistants of that time (Teodor Drăgănel, Violeta Zelmer, Florica Câmpan, and others). The course of the *Theory of Functions* was his most important teaching preoccupation in the Iaşi period. From the material considered, it results that the course began with an elaborate introduction in Set Theory and Topology of the complex plane. These elements constituted, of course, a solid foundation for delivering a modern course in the Theory of Functions. Only the post war courses and treatises on the Theory of the Complex Functions, attach so much importance to these basic introductory chapters.

Therefore, we may conclude by saying that although his favourite field was the Theory of Real Functions, Tiberiu Popoviciu was able to conceive and offer his students a modern course on the Theory of Com-

plex Functions. As regards the course of *Number Theory* the selection of the subjects was to a large extent influenced by the affinities the author had for this field, as well as by the fact that he was addressing a more experienced audience or one more interested in the study of mathematics. Thus,

He was co-operating to a large extent with his assistant. Thus, the exercises and T. Popoviciu would conceive, for the greatest part, the exercises and problems that were to be suggested in the seminar; he also enclosed a solving scheme and afterwards he commented upon them with his assistant.

In most cases the exercises and problems for the seminar were intended to prepare the next course. During the discussions with his assistant he always shared his ideas about the way these exercises should be solved, also mentioned those situations when he was not contented with the way in which he succeeded in preparing the progress of the next course through the problems and questions discussed at the seminar. His purpose was to consolidate with his students certain methods of solving the problems and when he wanted to illustrate a new method, he suggested a number of related exercises which could be solved by the same method. His aim was that the seminar should form in the young people those natural skills needed for research.

With this end in view, he thought up for his students problems of a high mathematical refinement. He could in no way have done otherwise if we recall that T. Popoviciu himself had begun this activity at a very early age and in an independent way. He was convinced that the disciples should know well their master's preoccupations in order to have a fruitful co-operation. This is why he offered the reprints of his publications to the students or to younger assistants and made sure that they fully understood their content. When delivering the courses, he presented the demonstrations in a very minute way but in his printed courses (he had asked his assistant to edit the course of the Theory of Functions), he considered that only the essential aspects should appear. He always came to the course with notes but he would never use them.

Throughout the four years, because of the hard situation of the country and of the University, T. Popoviciu was at times obliged to take care of the seminars for the courses he taught.

According to the testimonies of those around him or of those who attended the courses, he paid special attention to the direct work with his students and always presented interesting aspects connected with the chapter treated in the course. He was concerned to make sure that the students used a suitable bibliographical material.

It is known that a very good student was not given the highest mark for the simple reason that Popoviciu considered the treatise the student had used not to be one of the best (thus the treatise of Analysis by. E. Goursat was not considered by T. Popoviciu to be sufficiently rigorous in presenting some fundamental notions). He was exacting at the exams avoiding however extreme situations. In some particular cases he would show generosity and understanding for the special situations in which some students found themselves.

His courses and other lectures were freely delivered in a sober and elevated style, being much enjoyed not only by the students but also by other persons coming to attend them.

He was still a young man when appointed Professor in Iași and was probably excited when he entered The Department of Mathematics of the University, a department very much appreciated in the country and abroad.

Through his attitude full of seriousness, throught the scrupulosity in preparing his courses, through his active and competent participation in the discussions taking place between the members of the Department and through the genuine interest he had all the time shown for the library, T. Popoviciu gained the friendship and the esteem of Al. Myller and the other members of the Department.

T. Popoviciu supervised the activity of several students for the graduation paper. He always suggested topics of present interest, but always connected with his scientific interest. The teaching activity formed a whole with the scientific one, which stemmed from his very conception about what a member of the University teaching staff should be.

### The Research Activity

At the moment of his coming to Iași University, T. Popoviciu had a well-founded scientific renown, and his preoccupations in the domain of convex functions and the approximation theory of functions placed him among the best known specialists of the time. His Iași activity did not cause him to change the orientation and he remained faithful to the area of research for which he had already shown his preference. The atmosphere of learning which had been established by Al. Myller in the Department of Mathematics as well as the excellent library that constituted the nucleus of this institution, offered T. Popoviciu an exquisite milieu for intensifying and deepening his prestigious research activity.

Those who surrounded him during the years spent in Iași recall the fact that he went through whole collections of reviews in the library of the Department of Mathematics in order to locate the works that presented any interest to him. The long time spent in the library offered him the proper place for carrying on his research activity or for preparing public lectures, courses and seminars.

In his Iași period, Hermann Publishing House in Paris, published in 1944 the well-known monograph "Les fonctions convexes". It is true that the monograph study was not written in his Iași period, the manuscript having been submitted to the editor some years earlier as the author himself had told us. It is well known that this work is often quoted in the literature now that the concept of convexity plays such a significant role in mathematics and its applications. Neither can we overlook the fact that between 1940 and 1945, T. Popoviciu continued to publish in role in mathematics and its applications. Neither can we overlook the "Gazeta Matematică" paying the same attention to this publication as he had done in his youth. This publication played a very important role in the training of many generations of mathematicians and engineers, having thereby gained an outstanding place in the history of our culture.

Several members of the Department of Mathematics (Prof. Gh. Gheorghiev, Prof. N. Negoescu, Associate Professor T. Drăgănel, and others) attribute to T. Popoviciu the merit of having introduced some new forms to stimulate the scientific activities less popular at that time : T. Popoviciu laid the foundation of a scientific information group whose meetings were held weekly and the evolution of which preoccupied him intensely. The then attendants of these meetings recall the interesting lectures he delivered on the problems that interested him at that time : the approximation theory, functional equations, convex analysis, number theory.

In the Department of Mathematics, T. Popoviciu also presided over a number of weekly conferences centered especially around problems of analysis and geometry and within this framework he himself had submitted a large number of interesting reports. The majority of the professors of that time with the Department of Mathematics delivered lectures in which they dealt with topics in their respective fields of interest.

An outstanding feature of the research work carried on by T. Popoviciu in the period we are dealing with is his interest in the possible applications of mathematics in other fields of research.

Although this interest is not directly reflected in the publications of this period, those who attended his lectures and seminars (Prof. N. Negoescu, Prof. Olga Costinescu) recall the fact that he used every opportunity to point out the importance and necessity of the application of mathematics. This side of his activity referring to the way in which he understood the research work would later be brilliantly illustrated by his contribution to the foundations and development of the Computer Research Institute in Cluj-Napoca.

To the crystallisation of such a conception will undoubtely have contributed the richness of the Department of Mathematics library where Al. Myller had gathered carefully and passionately almost everything published in the field of pure and applied mathematics up to that time.

Although several members of the Department of Mathematics — especially the younger ones — took full advantage of T. Popoviciu's presence in this institution, the hard conditions of the higher education of that time, as well as the relatively short period of his stay in Iași made it very difficult for a school of research in the Theory of Real Functions to be born. However, it was not by mere chance that, later, some members of the Department of Mathematics dedicated part of their efforts to certain domains cultivated by T. Popoviciu.

We shall mention in this respect the interest shown by Prof. I. Creangă for the Theory of Numbers as well as the preoccupations for the Theory of Approximation in Prof. N. Negoescu's writings.

### Other Aspects of T. Popoviciu's Activity in Iași

We have mentioned above a number of data concerning T. Popoviciu's activity between 1942 and 1946. As the above-mentioned documents point out, the University Senate assigned T. Popoviciu the difficult task of directing the students' University Office in the second half of 1945. This

was an extremely difficult period in the life of the University, following its return from evacuation. The students' body was then confronted with serious material problems. The reorganization of this Office had to be accomplished on democratic bases. The fact that the University Senate headed by the Rector Al. Myller, assigned T. Popoviciu such a difficult task, points to the remarkable appreciation T. Popoviciu enjoyed as well as to his ranking among the University professors with advanced democratic beliefs. Connected with this activity, it is significant to mention here the following excerpt from Minute Nr. 10 of the meeting of the University Senate, August the 28th, 1945.

"The Rector proposes and the Senate approves that professor T. Popoviciu, president of the University Office, should address the students on the question of sending their representatives for choosing their committee. This Committee should be representing the students who have their meals at the canteen and live in the hostels".

In Minute Nr. 1 of the meeting of the University Senate of December 19, 1945, it is pointed out :

"The Rector points to the extraordinary work carried out by T. Popoviciu in his capacity of chairman of the University Office, succeeding in satisfying everybody by his impartial way of working and the affable way in which he received every applicant. The Senate highly appreciates Prof. T. Popoviciu's activity as chairman of the University Office and decides that he should be given due appreciation".

Another aspect we wish to point out here is T. Popoviciu' active participation in the proper managing of the library of the Department of Mathematics. The tradition established by Al. Myller asked that all patrons of the library should take an active part in its management. As one who spent many hours of his working time in the library, T. Popoviciu contributed to a large extent to its proper functioning. In the Spring of 1944, T. Popoviciu worked hard, including physical exertion, for the packing and shipping to Tranyslvania of all the library collections. The same persevering and passionate activity characterised him in 1945 when the University returned to Iaşi. Being known by his friends as a competent Professor and manager of the assets of the University, appreciated for having done well and whole-heartedly everything he had attended to, T. Popoviciu was often fiven other important assignments too, by the University, Faculty or the Department of Mathematics.

### Conclusions

As a Professor of the *Theory of Complex Functions*, field in which T. Popoviciu had not shown any special interest before his appointment to this job, he succeeded in offering the students a modern course, fundamentally based on elements of *Set Theory, Topology of the complex plane*, elements which he himself would present in the introduction to the course. In his teaching activity, T. Popoviciu never confined himself to the course of the *Theory of Complex Functions*; he also taught a general course in *Mathematics* for the students of the Departments of Physics and Chemistry (he had taught this course at the University of Cernăuţi

too), as well as an elective course in *Number Theory*. In the latter, there often appeared some of his preoccupations concerning this field.

When he was appointed Professor at Iaşi University, T. Popoviciu was a fully accomplished scholar and continued here his research activity in the fields he had devoted himself to Convex functions, the Theory of approximation, the Theory of numbers. In the Department of Mathematics in Iaşi he found a favourable atmosphere for carrying on his research activity, taking his place in the movement of mathematics in Iaşi. He had brought to Iaşi a number of remarkable ideas and initiatives regarding the boosting of the scientific life, organising seminars and courses of lectures attended by both students and faculty.

He proved himself to be a Professor of advanced ideals, also having undertaken a number of activities meant to assist the students who were deprived of material means (especially as a chairman of the University Office for students).

After he left Iaşi, T. Popoviciu maintained close contacts and cordial relations with his former colleagues, returning to Iaşi with great pleasure, whenever he could afford it.

He delivered his last public lecture at the University of Iaşi in June 1975, dealing with "*Some properties of the remainder in the interpolation formulae*".

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