Seventy Years of Foundational Studies: A Tribute to Andrzej Mostowski
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IOS Press, 2007

On the Life and Work of Andrzej Mostowski (1913–1975)[1]

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Andrzej Stanisław Mostowski was born on November 1, 1913, in Lvov. His father, Stanisław Mostowski, was a medical doctor and worked as an assistant at the Physical Chemistry Department of the University of Lvov; he was conscripted in 1914 as a military doctor and soon after died of typhoid fever. The family had to be provided for by the mother, Zofia née Kramsztyk (1881–1963), who worked for many years in a bank.

Andrzej (by his mother and close friends called *Staszek*, after the father) had one sister Krystyna (after the war she settled abroad – first in France, then in Montreal).

In the summer of 1914 Mostowski's mother went with her children to Zakopane to spend holidays there; in the face of the outbreak of war and the death of the father they remained there until about 1920, when they moved to Warsaw. From this time on, the whole life of Mostowski is connected with this city. Here, in the years 1923–1931, he attended the well-known Stefan Batory high school. In the higher grades of this school he showed himself to be an outstanding student with particular interests in the sciences. Apparently, his exceptional skills demonstrated themselves when, after going through an acute strep throat disease when he was 16, he had to start applying himself to school work. Unfortunately, the illness also resulted in some heart problems, on the basis of which he was later relieved from the duty of military service. The heart failure receded with time, but he was never conscripted anyway. After the war, when he had already become a professor, he was reassigned to the reserves as a so-called "officer with no rank".

In 1931 Mostowski began to study mathematics at the Mathematics and Natural Sciences Department of the University of Warsaw. He soon became interested in the founda-

[1] This paper is based on our Polish original article published in "Wiadomości matematyczne", Annales Societatis Mathematicae Polonae XXII.1 (1979), pp. 53–64, updated slightly where necessary. It is meant to present mainly the events of Andrzej Mostowski's life. We provide information on his work but do not discuss the content and impact of his scientific output.

The information included in this article has been taken from the following sources. Firstly, from the existing publications on the life and scientific output of Andrzej Mostowski. They are listed at the end of this text. The article by S. Hartman, which presents the profile of Mostowski, is of particular interest. We have also used the outline of the biography of A. Mostowski prepared by A. Śródka for the Archive of the Polish Academy of Sciences. The second source of data which we have used is the personal files and other documents of Andrzej Mostowski that have been found in the files of the University of Warsaw and the Institute of Mathematics of the Polish Academy of Sciences. The third – the oral information provided by various people and our own memories. Finally, we are grateful to Victor Marek for many useful comments that have improved our presentation.

Figure 1. Caricature of Andrzej Mostowski by L. Jeśmanowicz, 1946.

tions of mathematics, set theory and logic, which were taught at a very high level at that time there. Among the University lecturers were many famous persons who went down in the history of those fields: Kazimierz Kuratowski, Stanisław Leśniewski, Adolf Lindenbaum, Jan Łukasiewicz, Wacław Sierpiński, Alfred Tarski. It was soon to emerge that Andrzej Mostowski himself was also going to have a deep influence on the development of those disciplines. In the meantime, as a student he intended to obtain an extensive education and demonstrated his main interests to be reaching further than the scope of research of the Polish school of mathematics. He studied the theory of relativity, among other things, reading *Raum, Zeit, Materie* by Hermann Weyl and passed examinations in the extended course on analytical functions (he later used to recall Stanisław Saks with great affinity). The analytical functions must have been particularly appealing to him as he lectured on this subject in the last years of his life and insistently urged his assistants to give classes related to this topic.

While studying at the university, Mostowski became a member of the scientific section of the student Mathematical Society whose membership also included Zygmunt Charzyński, Stanisław Hartman, Julian Perkal, Jerzy Słupecki and other people who were longing "to escape from the political tumult and tension".[2] In 1936 Mostowski graduated from the University and obtained the degree of Master of Philosophy in the field of Mathematics.

From among the above mentioned celebrities of the mathematical circles in Warsaw it was Tarski and Lindenbaum who had the biggest influence on the scope of Mostowski's

[2] S. Hartman, 1976, p. 68.

interests and his scientific development. Mostowski used to call Tarski his "master". Lindenbaum once suggested to him during a discussion to try to formulate precisely the method of independence proofs[3] sketched by A. Fraenkel. This research, conducted initially together with Lindenbaum (which resulted in a joint publication), was the starting point for Mostowski to work out the so-called *Fraenkel–Mostowski permutation models* method. It constituted the content of his doctoral dissertation *On the Independence of the Definition of Finiteness in the System of Logic* written in 1938. It became well-known due to the publication [7] on the independence of the axiom of choice from the principle of linear ordering; i.e., the statement that every set can be linearly ordered.

Earlier, before the defense of his doctoral dissertation, Mostowski continued his studies abroad as auditing student taking advantage of the financial support of his uncle, who was an industrialist in Łódź. Mostowski studied in Vienna in 1936/37 and in Zurich in 1937/38. He intended to focus on the applied mathematics because he expected that he would have to earn his living by doing something more practical than the foundations of mathematics. At that time nobody knew that the "scientific and technological revolution" was about to come and there was a shortage of research vacancies at many institutions. However, the classes on applied mathematics turned out to be "horribly boring"[4] mainly due to the paucity of the mathematical means that were being used. And so, Mostowski abandoned this field – as it later turned out – forever. What aroused his interest were the classes of George Pólya and the seminar of Paul Bernays. Additionally, Mostowski was lucky to have the opportunity of listening to the lectures of the greatest masters: Kurt Gödel's (in Vienna) on the consistency of the axiom of choice, Herman Weyl's on symmetry and Wolfgang Pauli's on physics (both in Zürich). He always spoke of Gödel with utmost respect as of a genius. He once said that Gödel knows the solutions of the most difficult problems – as if he had a direct phone line to God. In reference to Weyl, Mostowski's attitude towards him can be best exemplified by the fact that for years Weyl's portrait hung on the wall of the Professor's office, on the ninth floor (room 908) of the Palace of Culture and Science in Warsaw, as the sole decoration.

During his stay abroad Mostowski did a lot of intensive research: he studied the axiom of choice and the definitions of the notion of finiteness, he learned the recursive functions theory by studying the works of Kleene. After returning to Warsaw, in February 1939 he defended his doctoral dissertation. His doctoral thesis was supervised by K. Kuratowski but Mostowski used to stress that it was Tarski who was his research patron, although Tarski was not a professor and therefore could not officially supervise Mostowski's Ph.D. dissertation. (It needs to be mentioned that Tarski, due to a variety of reasons, never held a professorial position in Poland.)

In January 1939 Mostowski was employed in the scientific section of the State Institute of Meteorology directed by the physicist Jan Blaton. With German occupation of Poland, Mostowski lost this job. Nevertheless he continued his research activities throughout the whole period of occupation. Initially he earned his living by giving private lessons and from September 1940 to August 1944 he worked in a small bituminous tile paper factory "Wuko" (M. Bogdani, E. Kossowski and Co.) as a book-keeping clerk. At the same time he took part in underground university teaching. In the academic year 1942/43 he lectured on analytic geometry for the first year students of mathematics at the underground University of Warsaw (UW) and in 1943/44 he gave a course of lec-

[3] Cf. Crossley, 1975, p. 44.
[4] Crossley, 1975, p. 45.

tures on algebra for the second year students entitled *The Galois theory*. Those clandestine study groups, in which he taught, were started on the initiative of Maria Matuszewska – who later became Mostowski's wife – and Klemens Szaniawski, who was later professor of logic at the University of Warsaw. Among his students, whose number was never bigger than ten in one group, were also the following future professors: Helena Rasiowa (logician at Warsaw University), Krzysztof Tatarkiewicz (mathematician at Warsaw University, son of a well-known philosopher Władysław Tatarkiewicz) and Jerzy Kroh (chemist at the Polytechnic of Łódz). The teaching took place in different private flats, each of which, as a matter of fact, belonged to someone from among the students, for example in the apartment of Władysław Tatarkiewicz. Professor Krzysztof Szaniawski has told us that apart from Mostowski the group of other lecturers for the first year students also included: Wacław Sierpiński (set theory), Karol Borsuk (analysis) and Zygmunt Waraszkiewicz and, furthermore, for the second year: Jan Łukasiewicz (logic), Bolesław Sobociński (he filled in for Łukasiewicz), Stanisław Mazurkiewicz (analytic functions). It is difficult to say whether Mostowski also taught some other clandestine study groups; obviously, there were many of them and also other mathematicians – for example Kazimierz Kuratowski and Witold Pogorzelski – were involved in that underground activities.

At that time Mostowski was a long way into the process of qualifying as *docent* (roughly, associate professor). Let us quote the opinion of W. Sierpiński of March 25, 1945 taken from the justification of the motion to nominate Mostowski for the senior assistant at the Warsaw University Department of Mathematics: "In July 1944 the process of receiving the Habilitation degree in mathematics by Dr Andrzej Mostowski was in full swing. (...) In order to accomplish it he was only required to give the lecture on his thesis and orally defend it. (...) The completion of these formalities was interrupted by the outbreak of the Warsaw Uprising. (...) In my opinion, which is undoubtedly shared by the rest of my Warsaw colleagues, Dr Andrzej Mostowski should be considered to have obtained the Habilitation degree in mathematics in spite of the fact that the final stages have not formally taken place because of the war-time events."

After the Warsaw Uprising all of the Warsaw's inhabitants were expelled from the city. For a number of times Mostowski succeeded to avoid being sent to Germany as a slave laborer, and spent this period hiding "in different dens and hovels to evade the street round-ups", as described by Stanisław Hartman,[5] then a companion of Mostowski's vicissitudes.

Also during that time Mostowski married Maria Irena Matuszewska. The wedding took place on September 26, 1944 in Tarczyn, some 30 km south of Warsaw. In October 1944 they both found employment in a farm research estate of the Main School of Farming in Skierniewice where until January 1945 Mostowski worked again as a junior book-keeping clerk.

In his home in Warsaw Mostowski left his notebook in which he made notes on all of his research discoveries since 1942. According to his reminiscences[6] it was a nice and very thick notebook and when, during the Uprising, the Germans ordered him to leave his home at Słoneczna street in which he lived with his mother, he had to choose whether to take the notebook or a loaf of bread. He chose the bread. The notebook was burned in a fire, which undoubtedly was a loss from the point of view of science, because later

[5] S. Hartman, 1976, p. 68.
[6] Cf. Crossley, 1975, p. 32.

Mostowski never managed to find time to recreate its entire content. The research on the decidability of the theory of well-orderings, included in the notebook, was published without a proof in 1949 in a joint paper with Tarski – its proof appeared only in 1978 as a paper written together with a third co-author. Moreover, the notebook also contained, among other things, the results of the research on the analogy of the projective hierarchy and the arithmetically definable sets as well as the proofs of some of the consequences of the axiom of constructibility in descriptive set theory.

From January 1945 for several months Mostowski had no job and lived on the money "from an odd private lessons and from the sale of a ring and a watch, as well as from a single subsistence allowance from the University (for the amount of 500 złotys)".[7] In May 1945 he found employement as a senior lecturer at the section of mathematics of the Electrical Department of the Polytechnic of Silesia with a temporary location in Cracow. He soon formally obtained the habilitation degree in mathematical logic at the Department of Mathematics of the Jagiellonian University by successfully defending his thesis [10], which is of fundamental significance for the studies of the mutual connections of various forms of the axiom of choice for the families of finite sets.

The story of Mostowski's subsequent life after the war is rather simple. In December 1945 Mostowski joined Warsaw University and continued there until the end of his days – for almost thirty years. Initially, he was a so-called deputy professor at the section of philosophy of mathematics, in 1947 he was appointed an associate professor of the philosophy of mathematics at the Mathematics and Natural Sciences Department of Warsaw University and in 1951 was appointed a full (ordinary) professor. During the academic year of 1950/51 he was the dean of the Mathematics and Natural Sciences Department and from 1966 until his death – the Deputy Director of the Institute of Mathematics of Warsaw University. He also was the first director of the Ph.D. Programme at the Department of Mathematics and Mechanics of Warsaw University, established in 1970. Additionally, between January and September 1946 he used to commute to Łódź, where he was a deputy professor at the university, in order to lecture there. When the National Institute of Mathematics (which later became the Institute of Mathematics of the Polish Academy of Sciences) was established, i.e. from July 1, 1949, he headed the Section of the foundations of mathematics, and from October 1956 to January 1964 also was the Institute's deputy director. In 1970, when the government no longer allowed for more than one position held by a scientist, his association with the Mathematical Institute of the Academy of Science ended. Also, he served on many sorts of committees. Inter alia, he was a member of the Commission for Supporting the Scientific and Artistic Creation attached to the Presidium of the Government Cabinet (in the years 1949–1952), the team of mathematical experts in the Head Advisory Council for the Minister of Education (1963–1966), the High Disciplinary Commission at the Ministry of Education (1965–1968), the Mathematical Sciences Committee from the time of its establishment in 1960. Moreover, he was the secretary of the Polish Mathematical Society (1946–1948) and its vice-chairman and the chairman of its Warsaw Section (1952–1955).

It has to be emphasized here that Professor Mostowski clearly did not like to hold the official posts and did it against his natural preferences. Since the end of the war, he tried to devote all of his time to science and family life. He was actively involved in the actions of many different scientific organizations, and he was a member of only

[7] According to the biography from 1950 (from the Warsaw University files).

one non-scientific organization, namely the Polish Teachers' Union (since 1946). On the other hand, his scientific activity encompassed an exceptional variety of topics: he did research and helped others to do so by inspiring them and suggesting ideas, he taught many subjects and wrote student textbooks, he organized the scientific life in Poland and the international co-operation in this field, he was the editor of mathematical periodicals and took part in creating new university syllabuses.

The situation of the mathematical logic in Warsaw after the war was very difficult. Not much was left of the formerly one of the most important centers of this discipline in the world. Mostowski was virtually left alone, except for Sierpiński and Kuratowski, whose activity in the field of foundations of mathematics, however, was practically limited to set theory. Mostowski started virtually alone, without the benefit of the advice one normally gets from his elders, having essentially none of educational or managerial experience. Yet, he felt he had the duty to rebuild the center in the field of mathematical logic and that he was partly responsible for renewing the mathematical life in general. What he had in mind did not solely refer to the foundations of mathematics. For example, even though his primary interests were not in algebra, but in foundations of mathematics, for many years, basically because of the shortage of qualified teachers in algebra, he lectured on this discipline. In 1950s, together with M. Stark, he wrote the textbooks: *Higher Algebra* (three parts), *Elements of Higher Algebra* (translated into English in 1963) and *Linear Algebra*, which were well-known and widely appreciated in Poland. For sixteen years, from 1953 to 1969, Mostowski held the post of the chair of the algebra section and, only after this, that of the director of the newly created Section of the Foundations of Mathematics at the Institute of Mathematics of Warsaw University. Several important algebraists started their studies in this field on his seminars. Many times Mostowski gave lecture courses on Galois theory. As a result of his longer visit to Berkeley, he stimulated in Poland research in differential algebra. He himself, however, never dealt with algebra in a creative way.

He used his talent for discoveries mainly in research in the broadly understood mathematical logic and the foundations of mathematics, i.e. set theory, recursion theory (based on the concept of a computable function), model theory, the logical calculi and the proof theory. Already in the first years after the war, his successive papers significantly broadened the scope of research in those subjects. Apart from the above mentioned habilitation thesis, among his most important publications of that period are: [13] – introducing the so-called Kleene–Mostowski hierarchy, [16] – introducing an algebraic method of demonstrating non-deducibility in the intuitionistic logic and [21] – related to Gödel's theorem that fascinated him. Mostowski expressed his deep understanding of this theorem in the book [34] and the paper [21] that was its far-reaching generalization. The fundamental issues of undecidability of various versions of formalized arithmetic were analyzed by Mostowski in several papers and studied in the collection of articles [40] by Tarski, Mostowski and R.M. Robinson.

Throughout the period after the war Mostowski gave courses and seminars on the foundations of mathematics. In 1948 he published the textbook on mathematical logic [18] and four years later a monograph on set theory [33], which was written together with K. Kuratowski. The logic textbook served many generations of students, but nevertheless the author never agreed for it to be translated into other languages. He claimed that the book did not reflect the state of research at the moment of its creation, and that in this sense it was obsolete.

However, the above mentioned monograph on set theory was translated into English in 1968 (a new, revised edition was published in 1976) and all the other books and major papers (except the algebra textbooks) were published in the so-called congress languages and after the war also in English. Among them there are as well other systematic lectures on set theory – the subject that Mostowski particularly liked. Additionally, the method of forcing, introduced in 1963 by P.J. Cohen, which was a major step forward in the independence proofs, was among other issues the topic of the series of Mostowski's lectures published in print at the end of the sixties: [87,96], and of the later one [110], as well as of the monograph [99].

Mostowski was studying set theory throughout his life. Apart from the already mentioned publications from before WWII and those that were written after it, one could add the paper [27], important for the research on Gödel–Bernays set theory, or the paper [88] on the constructible sets. The first of those papers was probably an early sign of Mostowski's particular interest in the axiomatic theory of classes and its stronger version – the Kelley–Morse theory – which he popularized and pursued mainly in the seventies. Special attention should also be called to the series of papers in which, starting in the late fifties, he introduced fragments of the set theories related to weaker systems of the theory of types based on natural numbers (cf. [71]). Mostowski studied those higher order arithmetics and their various classes of models in the sixties and seventies. Before that he initiated the research of another kind of strengthening of the first order arithmetic, described in the fundamental paper [64] written together with A. Grzegorczyk and Cz. Ryll-Nardzewski.

In the fifties the following important papers, which contributed to model theory appeared: [31] – starting investigations of the theory of products of models, [55] (together with A. Ehrenfeucht) – initiating the research on models with the so-called indiscernible elements and [61] – introducing the generalized quantifiers, which was a precursory to the development of the theory of abstract logics that became very fashionable fifteen years later. Furthermore, in the sixties Mostowski conducted, and often also initiated, investigations in model theory of various non-classical logics, for example in [74] on axiomatizability in the weak second order logic or in [95] on interpolation in various logics.

The above list of topics gives an idea of the influence that Mostowski had on the development of the foundations of mathematics. His deep knowledge of all the issues of the mathematical logic of the mid-sixties emanates from the survey papers and, above all, from the excellent lectures [87] which J. Hintikka described as "about as good a survey as anyone can hope to find".[8] It has to be mentioned, however, that with the immense increase in the quantity of publications in Foundations of Mathematics, with the corresponding growth of solved and open problems, with the variety of new proof techniques developed both in the Foundations of Mathematics and Computer Science in recent years, presentation of the panorama of Foundations is a task beyond the capabilities of a single person. It is unlikely that anyone, including Mostowski, would be able to present the picture of the entire Foundations today.

Mostowski's bibliography includes 119 publications. Teaching courses, systematic lectures and monographs comprise 13 of them, the papers containing original mathematical results – about 80. Some of them are repeated due to their translations and multiple editions.

[8] In the introduction to *The Philosophy of Mathematics*, Oxford University Press, 1969, which he edited.

Mostowski quickly gained an international recognition. It is enough to mention that as early as in 1948/49 he was invited as a "temporary member" to the prestigious Institute for Advanced Studies in Princeton. He again had the opportunity of meeting Gödel there. Later, he used to repeatedly travel abroad to take part in different symposiums and lectures in many countries, and was always welcomed anywhere he went. In 1958/59 he was a "visiting professor" at the University of California at Berkeley, where the center for the foundations of mathematics, which became the most important in the world, had been created by Tarski after WWII. In 1969/70 Mostowski was a member of All Souls College in Oxford.

Mostowski enjoyed immense intellectual and moral prestige in the mathematical community. Thus it is no surprise that he was a member of the Council and the Executive Committee of the European section of the Association for Symbolic Logic and, additionally, in 1964–1968 the Deputy Chair of the Section of Logic, Methodology and Philosophy of Science in the International Union of History and Philosophy of Science (IUHPS), and since 1972 – the chairman of this section. In 1974 Mostowski became a member of the International Committee responsible for granting the so-called Fields medals (that year the Committee awarded Enrico Bombieri and David Mumford). At the end of the sixties, a discussion on the future of the Mathematical Reviews and Zentralblatt für Mathematik periodicals took place in the columns of the Notices of American Mathematical Society. One of the arguments used for the continuation of publishing the scientific papers' reviews was the possibility of losing such "masterly reviews" as, for example, Mostowski's review of the results of P.J. Cohen.

On Mostowski's 60th birthday, Fundamenta Mathematicae published a special volume commemorating this occasion. Leading researchers of Foundations contributed to the volume; among them: K.J. Devlin, P. Hajek, E.G.K. Lopez-Escobar, Y.N. Moschovakis, K. McAloon, J. Barwise, M. Makkai, W. Guzicki, S. Feferman, D. van Dalen, W. Marek, H. Barendregt, C.E.M. Yates, L. Bukovsky, S.R. Kogalovskii, R. Vaught, H. Wang, A.S. Troelstra, R. Fraisse, U. Felgner, W. Schwabhauser, L.W. Szczerba, F. Galvin, J. Larson, L. Henkin.

Mostowski died prematurely at 62. After his death the following publications and events were dedicated to him to honour his memory: a volume of Proceedings of the international conference in Bierutowice in 1975, a special session on a congress of the Section of Logic, Methodology and Philosophy of Science of IUHPS, a conference in Bierutowice in September 1976, a symposium at the annual Logic Colloquium conference in Oxford in 1976 and another such conference in Wrocław in 1977.

Mostowski eagerly traveled to different mathematical centers[9] but at the same time many people visited him in Warsaw in order to attend his seminars, listen to his comments, discuss with him the research issues or just learn from him. A longer visit was thus, inter alia, received by: J.W. Addison, M. Benda, M. Boffa, M. Dickmann, E. Fredriksson, D. Giorgetta, P. Hinman, F.V. Jensen, R. Kowalski, E.G.K. Lopez-Escobar, M. Machover, J. Makowsky, K.C. Ng, K. Prikry, L. Rieger, H. Sayeki, Y. Suzuki, B. F. Wells, G. Wilmers. It also has to be emphasized here that the mathemati-

[9]The more important short scientific foreign visits of Andrzej Mostowski were the following: Berkeley (3 weeks, 1963), Helsinki (3 weeks, 1964), London (10 days, 1965), Jerusalem (4 weeks, 1966), Montreal (5 weeks, 1966), Los Angeles (4 weeks, 1967), Brussels (7 days, 1968), Varenna (17 days, 1968), Helsinki (2 weeks, 1969), Oberwolfach (7 days, 1969), Paris (2 weeks, 1972), Genova (3 weeks, 1972), Waterloo (2 weeks, 1973), Melbourne (3 weeks, 1973), Kiel (3 days, 1974), Berkeley (2 months, 1975).

cians from the now well-known in the world Prague school of P. Vopěnka and P. Hájek remember very well the much appreciated help of Mostowski in making it possible for them to enter the international forum.

The exceptional friendliness and personal charm of Mostowski caused our country to stand exceptionally high in the favour of foreigners. Many of them still maintain lively scientific relations with the Polish mathematicians. Some of them even learned to speak Polish. This fact was occasionally the source of amusing situations. There is a well-known story about a conversation between a number of people that took place after Mostowski's lecture in Montreal. Mostowski fluently switched from language to language answering different questions. At one point Sayeki, a Japanese, asked him about something in Polish and Mostowski answered the question straight away. The astonished listeners congratulated him on such proficient command of Japanese.

Mostowski had obviously the biggest impact on the shape of mathematical logic and the foundations of mathematics in Poland. At he tome of his death, all the people who were active in this discipline in Warsaw and most of such persons in other cities were directly or indirectly his students. From among the Polish mathematicians, the following scholars co-authored research papers with Mostowski: Andrzej Ehrenfeucht, Andrzej Grzegorczyk, Kazimierz Kuratowski, Adolf Lindenbaum, Jerzy Łoś, Wiktor Marek, Helena Rasiowa, Czesław Ryll-Nardzewski, Alfred Tarski. Also Stanisław Jaśkowski, Stanisław Mazur and Roman Sikorski, who collaborated in the writing of the expository article [47], have to be mentioned here.

Significant efforts of Mostowski were related to scientific publishing. He was the editor of the mathematical, astronomical and physical series of the Bulletin of the Polish Academy of Sciences (since 1956), a member of the editorial committees of Fundamenta Mathematicae, Dissertationes Mathematicae, Studia Logica and Journal of Symbolic Logic, one of the editors (since 1966) of the well-known series of the Studies in Logic and the Foundations of Mathematics published by the North Holland Publishing Company (moreover, since its establishment in 1951, he remained in contact with the publisher, M. Frank, and significantly contributed to the increase of importance and reach of this series), and lastly, he also was a co-creator and co-editor of the Annals of Mathematical Logic, whose objective was to publish long articles that were normally distributed on a small scale in a mimeographed form and therefore were available to a limited extent to the people from outside the main centers.

Mostowski's wife, Maria Mostowska, was for many years, until her retirement in 1982 the head librarian at the Mathematical Institute of the Polish Academy of Sciences. All those who visited the library during her tenure recall her efforts to provide the best support for the creative work of the mathematicians. The passion to mathematics passed from Mostowski to his sons: the older one, Tadeusz (b. 1947), is a mathematician at Warsaw University; and the younger one, Jan (b. 1949) – a physicist at the Institute of Physics of the Polish Academy of Sciences. His daughter Maria (b. 1956), called Isia, graduated in medicine and currently is active in business in Warsaw.

One of the life-long passions of Mostowski was astronomy, and in particular stargazing. As a student he became a member of the Society of Friends of Astronomy. He visited some of the best-known observatories and in 1958 brought home from the United States a telescope. Since then, together with his sons, he carried systematic observations of stars. He often climbed the roof of his neighbours house for better visibility.

While Mostowski was well known for his modesty, his scientific and organizational achievements resulted in many honors and prizes. In 1956 he was elected a Corresponding Member of the Polish Academy of Sciences and in 1963 a full member of the Academy (for the period of 1960–1963 he served as a member of Scientific Secretariat of the III Division of the Academy of Sciences). Mostowski received twice Polish State Prizes for Science: the lower (second class) prize in 1952, and in 1966 the First Class State Prize. The prize was awarded for his contributions to Foundations of Mathematics. Polish non-governmental organization in the United States, Jurzykowski Foundation, awarded its prize to Mostowski in 1972. In 1973 Mostowski was elected to Finnish Academy of Sciences. Since Mostowski did not keep track of distinctions we could not find other awards which were, certainly, bestowed upon him. Those who knew him were well aware that he did not care.

The relentless activity of Professor Mostowski did not decrease even after his long-lasting illness in 1973 when he was diagnosed with diabetes. He continued to be an example of reliability and the sense of duty. He also suffered from high blood pressure. The refusal to take the drugs that, as he felt, limited his capacity to think and work, was among the reasons of his untimely death.

Mostowski travelled to Berkeley and Stanford for the Summer of 1975. On his way back he was travelling to London, ONT, for the Fifth Congress of Logic, Methodology and Philosophy of Science. On his way there he visited his student Malgorzata Dubiel-Lachlan in Vancouver, BC. On August 20, 1975 he gave his last lecture there, and half an hour after its completion he experienced a stroke. He died two days later, without regaining consciousness. Accommodating his wish, his ashes were dispersed over the ocean.

A list of early publications on Andrzej Mostowski

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[1975] K. Kuratowski, *An extensive obituary of A. Mostowski*, Życie Warszawy, 29.08.1975.
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[1978] *A. Mostowski, Foundational Studies, Selected Works*, volume I, Polish Scientific Publishers and North-Holland Publ. Co., 1978 (a short biography, full bibliography of publications and reports on the results of Andrzej Mostowski in various areas of the foundations of mathematics).

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