

JOSE ADEM (1921–1991): A BIOGRAPHICAL SKETCH

Jose Adem was born on October 27, 1921 in Tuxpan, Veracruz (Mexico). From an early age he showed great interest in mathematics, and in 1941 he moved to Mexico City to study engineering and mathematics at the National Autonomous University of Mexico.

Once he had completed the basic courses, Adem developed an interest in research in pure mathematics. Given the existing conditions in Mexico at the time, it would normally have been very difficult for him to enter this field. Fortunately (and as consequence of the situation in Europe) the famous mathematician Solomon Lefschetz had decided to spend long periods in Mexico, interacting with the small Mexican scientific community. Lefschetz recognized Adem's valuable mathematical talent and decided to send him to Princeton University as a graduate student.

Towards 1950, the development of mathematics had extended beyond the formal classical areas and was growing at an accelerated pace through interactions between geometry, algebra and analysis. In particular, algebraic methods were introduced for studying topological situations. This principle, developed under the tutelage of Lefschetz among others, represented an exceptional breakthrough for mathematics. Among the most successful individuals expounding this new philosophy was Norman Steenrod, under whose guidance Adem had the good fortune of writing his doctoral dissertation.

I will not repeat here the technical details of Adem's thesis, suffice it to say that it was of such a fundamental nature that the "Adem relations" continue (even today) to have important consequences in topology and its applications.

Upon his return to Mexico, Adem carried out several teaching activities at the National Autonomous University of Mexico and afterwards he joined the recently created Center for Research and Advanced Studies of the National Polytechnic Institute, as Head of the Department of Mathematics, where he formed a school and a tradition.

He undertook the responsibility of initiating the II Series of the *Boletín de la Sociedad Matemática Mexicana*, being the Editor from 1956 up to his death. This journal has been considered as the only relevant publication at an international level in the Mexican mathematical community.

From 1968 onwards he was a member of the International Committee of the Latin American School of Mathematics and from 1969 to 1975 he acted as Coordinator of the Multinational Program of Mathematics of the Organization of American States, thus imparting an important impulse to mathematics in Latin America.

He received the highest honors from his country (member of *El Colegio Nacional* and recipient of the National Science Prize, among others) and lived

his entire life as a dedicated and persistent researcher, encouraging young people and helping to create a basis for scientific research in Mexico.

We conclude this brief sketch by stating what is evident: Jose Adem's legacy includes not only original and transcendental work of the highest caliber, but also a scientific philosophy of great and lasting value for Mexico.

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