

A PHOTOGRAPH AND BEYOND:

KARL VON TERZAGHI, AN ACADEMIC IN "MÜHENDİS MEKTEB-I ÂLÎSİ" IN ISTANBUL, TURKEY 1918



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This photo shows Karl von Terzaghi as an academic in "Mühendis Mekteb-i Âlîsi" in Istanbul, Turkey in 1918. Karl Terzaghi is (#1) in the photo above, sitting next to Prof. Forchheimer (#2). Prof. Forchheimer was Terzaghi's professor while he was a student in Graz Technical University. We know that he became a role model for Terzaghi during his years in his undergraduate studies.

It was in fact Prof. Forchheimer; who invited Terzaghi to Istanbul to teach, in 1916.

This photo was shot in 1918 and shows Terzaghi and Prof. Forchheimer in “Mühendis Mektebi Alisi”, which is now ***Istanbul Technical University***.

They posed together with other lecturers and students of the university during the First World War. The undergraduate civil engineering program at that time was concentrated basically on roads, railroads and hydraulics. The gentlemen in the photo were probably lecturing or studying those subjects in their classes.

It is important to note that most of the students were officers of the Ottoman Empire Army. The gentlemen (#3) and (#4) were the lecturers; who acted as the rectors of the university during some time intervals.

The text in the below section of the photo notes that this photo was filmed in 1918, in Pangalti, Taksim. Although not certain, the photo was probably shot in the garden of Dame De Sion High School, which was then used by the university as the campus.

Due to conditions imposed by the First World War, the university lacked a permanent campus in those days.

An Unexpected Invitation from an Old Professor

In 1916, Terzaghi was invited to Istanbul by Prof. Forchheimer; who was appointed to Mühendis Mekteb-i Âlîsi (Istanbul Technical University of the present) to re-organize the engineering education program. Terzaghi accepted the invitation and arrived in Istanbul with his wife and newly born daughter in September 1916. According to Ozudogru (2000), he expressed his feelings for arrival to the city as;

"I was mesmerized as soon as I saw one of the most beautiful ports of the world and the city that surrounds it with its shimmering beauty"

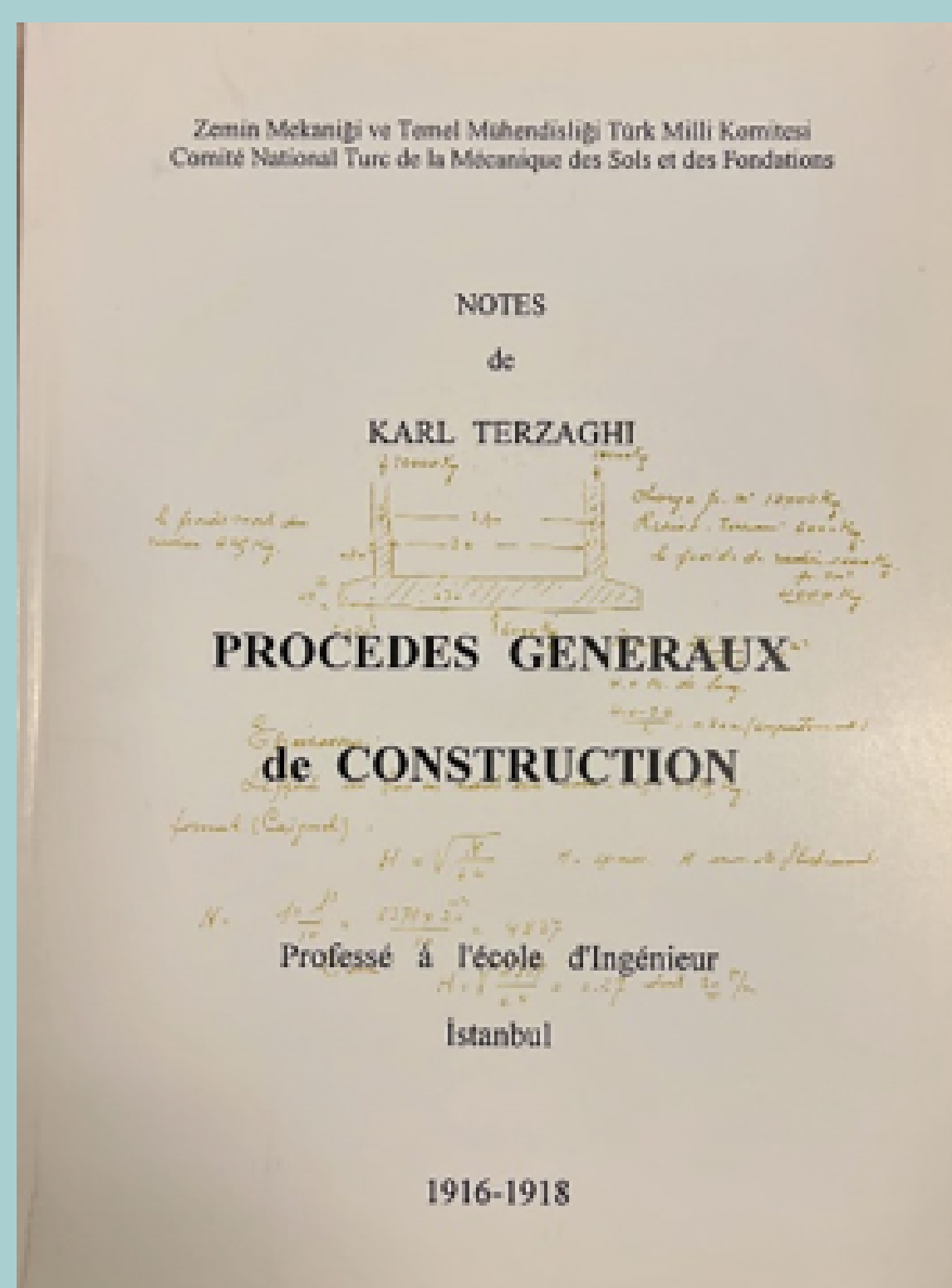


Peirre Loti Café is known to be one of the most favorite places of Terzaghi during his stay in Istanbul. This café is still one of the most beautiful places where you can enjoy a delicious Turkish coffee and watch the Golden Horn and the city from a hill.

General Construction Methods Course (Procédés Généraux de Construction)

In the civil engineering department, he taught a course named “Usülü Umumiye Dersi” which is “General Construction Methods” (Procédés Généraux de Construction).

In this course, he taught the foundations, road and railway engineering. The courses were given in French. He had an assistant, Mr. İlyas Cural, who helped him with this course. The lecture notes were later organized and reprinted by Turkish National Society for Soil Mechanics and Geotechnical Engineering in 1995 for the “70 years of Soil Mechanics Conference”, which was held in Istanbul. Figure below shows the cover page of this book.



It was these years in Istanbul, that he thought heavily on the soil mechanics problems and tried to create set-ups for simple soil testing. By using very simple tools, he was able to measure the earth pressures behind a model retaining wall. He emphasized later that the results he obtained by these simple set-ups were as good as the results that he would later measure with more sophisticated equipment.

Terzaghi's years at Istanbul Technical University lasted till December 1918 and then he was transferred to **Robert College** of Istanbul. It was Robert College, where he created a small soil mechanics laboratory. It was this laboratory where he designed three simple and important soil mechanics testing equipment;

- *one for investigating soil boiling,*
- *one for investigating the stability of coarse grained materials subjected to seepage forces at the sheet pile walls and*
- *one for the consolidation of clays.*

The notes and drawings that he took for these studies are now in Norwegian Geotechnical Society.

As a result of his hectic studies in the laboratory, he could propose the most important concept in soil mechanics; **Effective Stress Concept**.

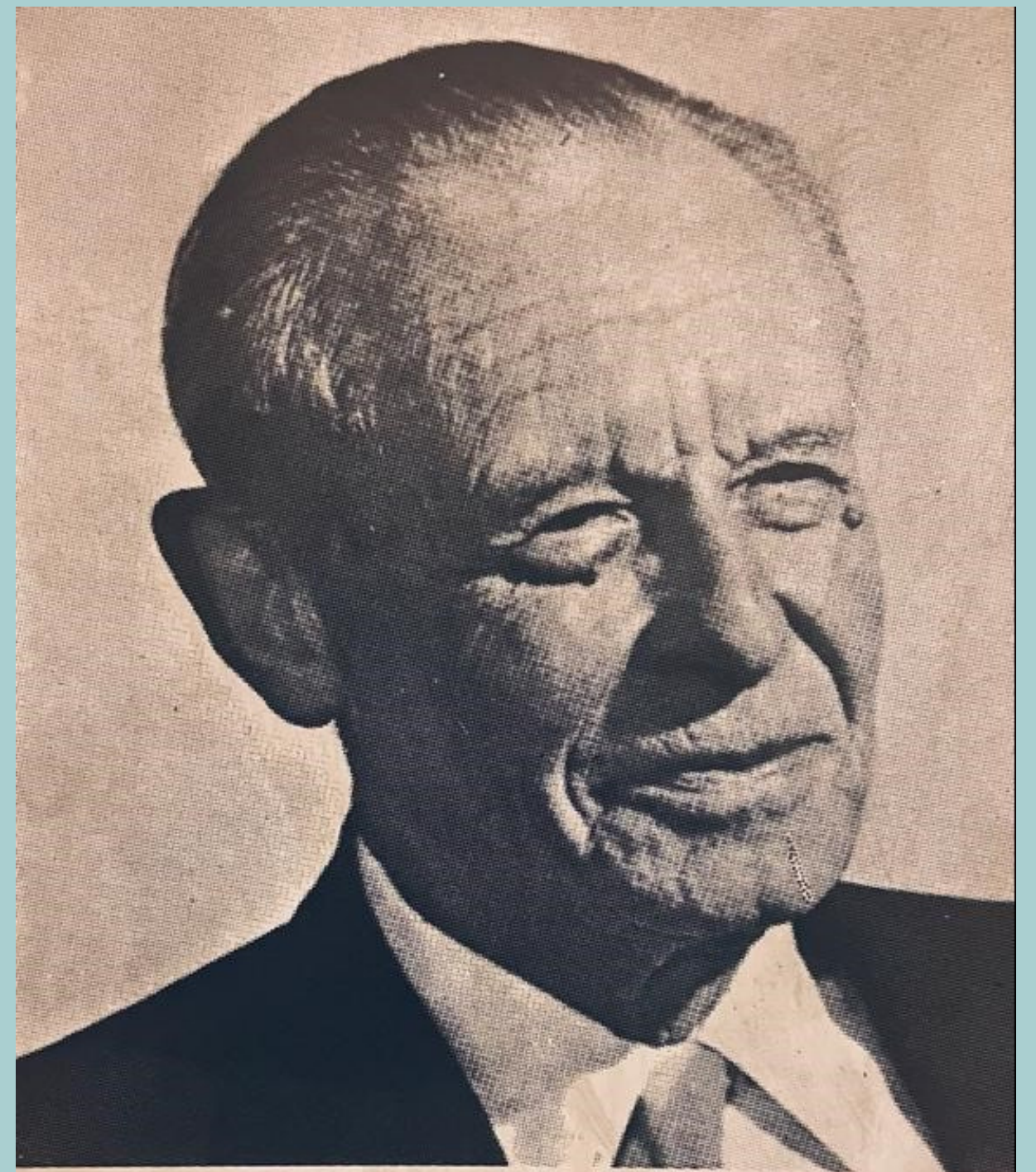
It was 1923 in Istanbul, when he solved the consolidation theory based on his background in mechanical engineering. It was the heat transfer equations that he applied for the consolidation of clays.

In those years, he also consulted in several geotechnical projects, such as Silahtaraga Electrical Plant which was founded on the soft soils by the Golden Horn.

He later mentions "*Robert College in Istanbul, where I laid the foundations for soil mechanics*". The below photograph shows Boğaziçi University Campus (former Robert College Academy of Istanbul)



Terzaghi's days in Istanbul ended in 1925, when he left for the United States, but he was not forgotten by the two institutions where he worked for about a decade. He received an honorary doctorate from Istanbul Technical University and an international conference (Terzaghi's Memorial Lectures) in honor of him was organized by Boğazici University which was formerly Robert College.



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