

ISSMGE Time Capsule Project

Discoverer's Report

Ir. Dr. Choo Chung Siung (Malaysian Geotechnical Society)

Le Comité Français de Mécanique des Sols et de Géotechnique



French contribution to the Time Capsule Project



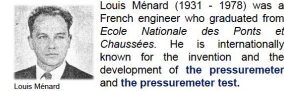
What is included?	History of French geotechnical achievements
URL	https://www.cfms-sols.org/time-capsule/time-capsule-project-cfmsissmge
Hashtags	#pressuremeter #cfa #menard #soilgrouting
Interesting	It is a very good recollection down memory lane, looking at all the world-famous contributions by French geotechnical engineers. Presented as posters, reports, and interviews.

MÉNARD AND THE PRESSUREMETER TEST

By Alexandre Lopes dos Santos, young member of the French Society for Soil Mechanics and Geotechnical Engineering (CFMS Jeunes), April 2022

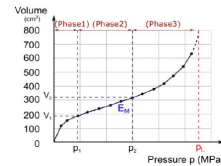
Ménard developed an innovative *in situ* investigation technique that provides both deformation and failure parameters of the ground. More than that, he developed concepts that are the basis of an original school of thought on foundation engineering.

The engineer: Louis Ménard



Louis Ménard

Louis Ménard (1931 - 1978) was a French engineer who graduated from *Ecole Nationale des Ponts et Chaussées*. He is internationally known for the invention and the development of the pressuremeter and the pressuremeter test.



- Deformation parameter: the Ménard modulus E_M
- Failure parameter: the limit pressure p_1

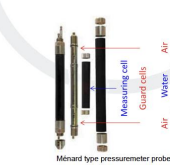
A remarkable work

Ménard was only 23 years old when he invented the pressuremeter. He developed concepts and methods that contributed to a deep change in the way geotechnical investigation and foundation design was done in France. Besides an engineer and inventor, he proved to be a businessman able to spread his ideas worldwide. Amongst his contributions we can quote:

- Creation of the journal *Sols-Sols* (1962-1980)
- Development of the first foundation design rules using the pressuremeter (Notice D60). These rules evolved and are now present in the international foundation standards
- The development and implementation of the dynamic compaction techniques

The pressuremeter test continues to evolve:

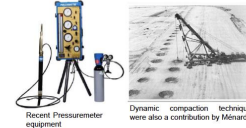
- The International Symposium on Pressuremeters was initiated in 1982 and is now in its 7th edition
- The French joint industry-academia research project, ARSCOP (2016-2022) is dedicated to the improvement of the pressuremeter techniques and design methods



Ménard type pressuremeter probe

The pressuremeter test

The pressuremeter test is an *in situ* cylindrical cavity expansion test. The test consists of inserting an inflatable probe into the ground, inflating the probe and pressurizing the ground according to a given loading protocol and taking measurements of pressure and volumetric expansion. It results in a cavity expansion curve, from which it is possible to derive a ground deformation E_M and failure parameter p_1 – see graph. These parameters can be directly used for the design of foundations and other geotechnical structures.



Recent Pressuremeter equipment. Dynamic compaction techniques were also a contribution by Ménard

Interview with Professor Roger Frank

"The pressuremeter test is very useful because it can be performed in all ground conditions, from soft soils to hard soils or soft rocks, and it provides the geotechnical engineer with both deformation and failure parameters, which are useful for all aspects of foundation engineering"

Want to see the whole interview? Please visit the Time Capsule Project page on the CFMS site.

For more information, see the affiliated report *Louis Ménard and the pressuremeter test*

Louis Ménard and the pressuremeter test

Ménard developed an innovative *in situ* investigation technique that provides both deformation and failure parameters of the ground. More than that, he developed concepts that are the basis of an original school of thought on foundation engineering.



DOWNLOAD THE POSTER

DOWNLOAD REPORT

Introduction

Henri Cambefort and Soil grouting

Louis Ménard and the pressuremeter test

Henri Vidal and Terre Armée (reinforced earth technique)

CFA – Continuous Flight Auger

National Projects

Conclusion

Hellenic Society of Soil Mechanics and Geotechnical Engineering (HSSMGE)



What is included?	A showcase of geotechnical contributions to major projects in Greece.
URL	http://www.hssmge.gr/
Hashtags	#tunnels #dams #landslides #casehistories
Interesting	The showcase demonstrates the crucial roles that geotechnical engineering has played to understand tunnel, dam and landslide problems in Greece , and how Greek geotechnical engineers have contributed to the development of innovative solutions to many major marquee projects .



Twin tunnel of Metsovitikos River with berm above it stabilizing one landslide to the north (left side) and to the south (right side). Picture taken by drone from downstream of the river.



Crack and settlement (Athens-Thessaloniki highway)



Kallidromon tunnel



Mornos Dam

The Canadian Geotechnical Society



**THE CANADIAN
GEOTECHNICAL SOCIETY**
**LA SOCIÉTÉ CANADIENNE
DE GÉOTECHNIQUE**

What is included?	A video showcasing the geotechnical history of tailings dams in Canada.
URL	https://www.cgs.ca/mining_committee.php
Hashtags	#tailingsdam
Interesting	An amazing collection of photos and cases of tailing dams in Canada. This brings the viewers through an extensive evolutionary recollection of the design of tailings dams , as well as earth dams. Special insight is paid to the fundamental geochemical and dewatering studies of tailings engineering, such as the development of filtered tailings.

Silver-Leaf Mining Company, Cobalt, Ontario circa 1905 to 1930

