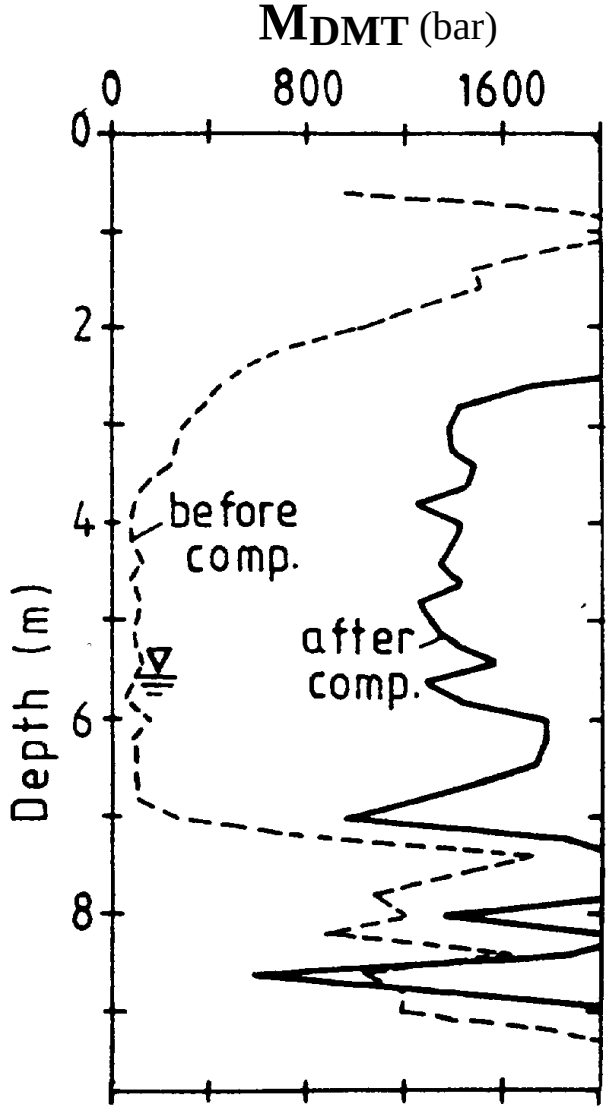
**The following pages are an excerpt from : Marchetti S. (2001)
"The Flat dilatometer", 18th CGT - Conferenze Geotecnica Torino**

DMTbefore-after for Compaction Control

Reasonant vibrocompaction technique



Van Impe, De Cock, Massarsch, Mengé
New Delhi (1994)

DMT more sensitive to COMPACTION

From before-after CPT/DMTs to monitor compaction

often found $\frac{\Delta Mdmt / Mdmt}{\Delta Qc / Qc} \approx 2$

Schmertmann (1986) DYNAMIC COMPACTION of sand site. M_{DMT} % increase » *twice* % increase in q_c.

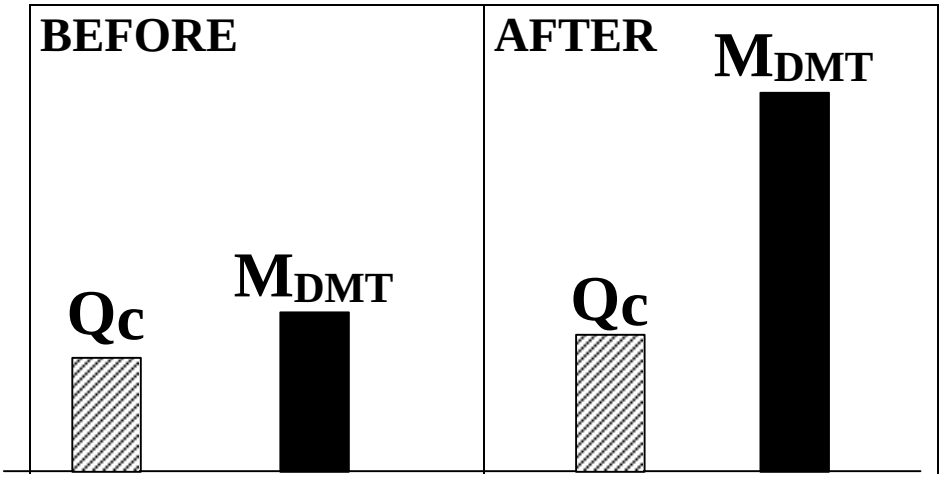
Jendeby (1992) monitored DEEP COMPACTION in a sand fill by *VIBROWING*. M_{DMT} increase » *twice* increase in q_c.

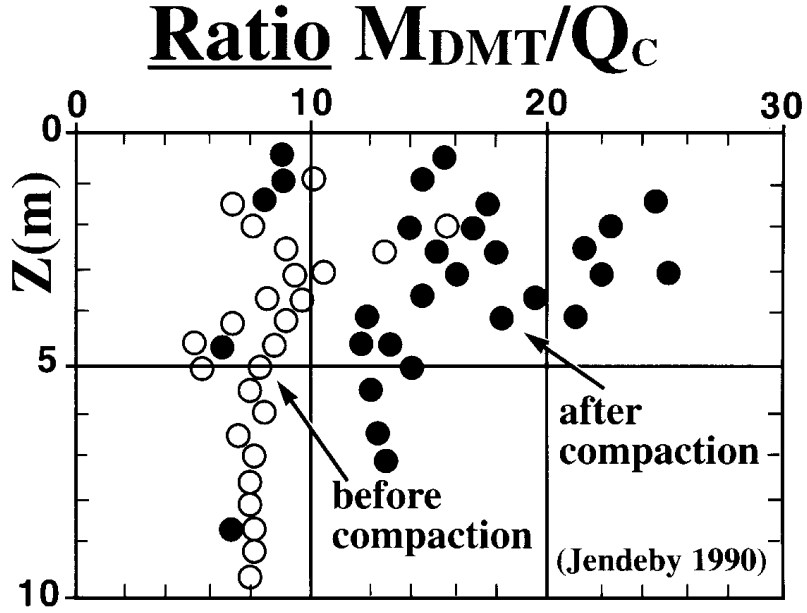
Pasqualini & Rosi (1993) VIBROFLOTATION job :
"DMT clearly detected improvement even in layers where benefits were undetected by CPT".

Ghent group (1993) before-after CPTs DMTs to evaluate effects ($\pm D s_h$, Dr) by PILE (Atlas) INSTALLATION
"DMTs before-after installation demonstrate more clearly [than CPT] beneficial effects of Atlas installation".

FLAT SHAPE MORE REACTIVE TO STRESS HISTORY

Jendeby 92 measured Qc & M_{DMT} before and after compaction of a loose sandfill





COMPACTION CONTROL

Sensitivity of DMT esp. advantageous.

In fact, <u>if Qc is used to control</u> compaction:

- **Since Qc scarcely sensitive to σ_h**
- **Qc reflects *<u>PART</u>* of the benefit ($\Delta\sigma_h$ mostly missed !)**
- **Settlement predicted from Qc after compaction too big : +200-300%** (Massarsch'94). **Consequence : compact more than necessary Þ waste $**

<u>If Mdmt is used to control</u> compaction:

- **Since Mdmt incorporates σ_h,compaction**
- **Settlement predictions incorporate benefit of increased σ_h. Waste avoided.**

Scope of compaction: limit settlements.
<u>More rational</u> specs on Modulus than Dr (from SPT/Qc) - Schmertmann, 1986