(1) standardization of pile-soil interaction models; of course only those models should be selected that may be expected to describe the physical phenomena as realistic as possible;

(2) standardization of methods to establish the parameters of the pile-soil interaction model for a given measurement;

(3) establishment of the field of application for the various methods and quantification of accuracies on the basis of systematic test series; this means that one should find the mean and standard deviaton of the discrepancies between model and reality; reality is in this respect a standardized static load test;

(4) based on the information found under (3) one can derive design values for the load bearing capacity which can be used within the modern load and resistance factor design approach.

Of course this is a research program for years. And what is more, it is a program that no company, institute or university is able to do alone. To carry out the above program is possible only if there is a world wide coordination on standardisation of models and comparison between models and reality.

REVIEW OF INDIVIDUAL PAPERS

L. Aaltonen, O. Tirkkonen, R. Wikstrom: A new design method of (rammed) piles.

A new field measurement system is shown, by which the bearing capacity of a mini-pile is used, to predict the ultimate bearing capacity of full-scale piles. The system is rather complete with penetration test, soil parameters, theoretical bearing capacity, simulation of driving, and analysis of the bearing capacity. Standard methods as CASE and CAPWAP are used to interprete the measurements.

Remarks: The paper is rather suggestive, actually more commercial than scientific. Scale effects are not properly studied. The interpretation of the graphs is rather incomplete. It is mentioned in the paper that in Pori some piles were broken. Is this assessed only theoretically?

N. Aoki and V. de Mello: Dynamic loading test on concrete pile in resudial soil.

The paper discusses the limitations of SMITH, CASE and CAPWAP approaches. The interpretations of measurements show several deficiencies in the models, especially the dependancy of parameters on the energy level of driving. Proposals for improvements of the models are given, such as the introduction of the ratio toe resistance over toe quake.

The paper urges the necessity of better models for the pile-soil interaction and for more advanced models.

Remarks: The literature research is good! Can the dependency of the quake and damping on energy level be translated in soil behavior more specifically? How important are the quake-value and J-value for the global behaviour? What is the effect of the plug, see fig. 1? The paper confirms the results of paper 86. A shortcoming of the paper is that the recommended improved models have not been used in the paper itself.

M. Bustamante, L. Gianeselli, C. Schreiner: Comparitive study on the load bearing capacity of driven H-piles in a layered marl.

The paper relates the results of a series of full scale static and dynamic pile load tests, performed on steel H piles, driven into very hard marl with a particular structure. The dynamic tests were interpreted using CASE and CAPWAP methods. One pile was instrumented for the static test. The aim of the tests was the comparison of the appropriateness of different methods for predicting the bearing capacity of the piles and for determining the distribution of forces along the shaft. The comparison shows that CAPWAP gives a good prediction of the point resistance however a large overestimation of the shaft friction.

Remarks: How does the chosen value for J affect the results? The dynamic estimation of the bearing capacity has been determined after the static test, which makes the result of less value.

L. Chen, M. Fan, R. Zhao: Pile integrity analysis from lateral mechanical admittances.

A visco-elastiecally supported Euler-Bernoulli beam model has been used to investigate the use of lateral vibrations of piles for integrity testing, additional to axial testing. Some experimental results are shown.

Remarks: The type and the way of loading in the tests is not specified. The approach is only valid in the low-frequency band because of the Euler-Bernoulli model used. A Timoshenko model would have advantages especially for the Mode II vibrations. The lateral soil reactions have a large impact on the results, especially the proposition of constant stiffness and damping per length. Is steady-state theory used for a transient loading?