



# GRL NEWSLETTER

Information gathered by  
the engineers of  
GOBLE RAUSCHE LIKINS  
AND ASSOCIATES, INC.

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## HAPPY HOLIDAYS

As the year 1988 nears its completion, all of us at GRL and PDI would like to thank our friends, clients and customers for their continued support and interest in our work. If you feel like us, then you look forward to a peaceful holiday season. May the new year bring fulfillment to you and success to your business.

### PDA USERS DAYS IN SINGAPORE AND BEIJING

In order to strengthen the support of our clients in the Far-East, PDA Users Days were held in Singapore and Beijing. G. G. Goble and G. E. Likins conducted these meetings with the help of A. Bohman of Herkules, and C.J. Gravare of Europile, both of Sweden, and N. Mure and M. Kightley of Testal, U.K.

Oct. 31 - Nov. 1, 1988: In Singapore, more than 20 attendees discussed the effective use of the PDA, new hardware-software features and case studies. The meeting was organized with the support of B. Nord of ABV Pile Mechanics of Singapore. Maunsell of Australia and Malaysia assisted by providing hardware.

Nov. 4-5 1988: Nearly 100 engineers attended a PDA Users Day in Beijing, China. On that occasion a general seminar was also held for other parties interested in dynamic pile testing. These meetings were organized by Earth Products of Hong Kong.

### G. G. GOBLE RECEIVES ASCE AWARD

At the ASCE 1988 fall convention in St. Louis, G. G. Goble was honored with the Martin S. Kapp Foundation Engineering Award. The December 1988 ASCE Civil Engineering magazine writes:

*"The Kapp Award goes to George Goble for development and practical implementation of the Pile Driving Analyzer that incorporates measurement and analysis techniques and is used worldwide for predictions of pile driveability, damage and bearing capacity."*

### STEVEN K. ABE JOINS GRL

After completion of graduate work leading towards an M.S. degree in Civil Engineering at Cleveland State University, Steve Abe joined GRL's engineering staff in Cleveland. For his thesis he performed research work at NASA's Structural Integrity Branch. Steve was graduated in 1984 by the University of Michigan with a B.S. degree in Geology.

### NEWS FROM PILE DYNAMICS, INC. (PDI)

Our sister firm reports PDA deliveries and training activities in Florida, Minnesota, New Mexico, China, Singapore, and other locations. J. Dessoffy reports that progress has been made on a PDA resident static memory. D. Peterman has written a quick PDA plotter program.

### 1988 USERS DAY CONTEST

PDI announced the winner of the 1988 PDA Users Day Contest: Jan Rommel of Skanska, Sweden received the coveted prize, a strain transducer, for his diagnosis of the known defects of PDI's special test piles. Basis for the diagnosis were PIT records obtained during the Users Day.

### SEMINAR SERIES IN THAILAND AND TOKYO

Oct. 28, 1988: Bangkok, Thailand; more than 100 engineers attended. Sincere thanks to Prof. Balasubramaniam of the Asian Institute of Technology is for his organizing efforts.

Nov. 7, 1988: Tokyo, Japan; Fifty engineers from government agencies, construction companies and other firms attended a seminar organized by Prof. Fujita and the Japanese Pipe Pile Manufacturers Association. Their efforts are gratefully acknowledged.

### OTHER RECENT EVENTS WITH GRL-PDI PARTICIPATION

Aug. 24-26, 1988: DFI Mid-America Seminar on Deep Foundations and Heavy Construction, Ann Arbor, MI. F. Rausche presented GRL's testing methods and PDI's equipment to more than 100 engineers.

Sep. 7-8, 1988: ASCE Central Pennsylvania, Developments in Geotechnical Engineering, Harrisburg, PA. W. Teferra represented GRL.

Oct. 3-6, 1988: At the Southeastern Transportation Geotechnical Engineering Conference, in Raleigh, NC, M. Hussein represented PDI and exhibited the PDA and related equipment.

Oct. 25-27, 1988: Laboratoire Central des Ponts et Chaussées, Paris, France; Continued Education Course on "Battage Dans les Sols."

Nov. 9-11, 1988: 6th Nat. Conf. on Micro Computers in Civil Engineering, Orlando, FL. "Wave Equation Analysis, Methodolgy and Performance" by Hussein, Rausche and Likins was presented in the Geotechnical Session.

## FROM AROUND THE WORLD

### BRAZIL

PDI Engenharia's Gina Beim visited PDI in September/October for software updates, including PIT, and technical support. A few CAPWAPC analyses were checked by GRL for Noronha engineers for their current offshore project.

### GERMANY

Bilfinger + Berger's engineers asked GRL to review their analysis results from dynamic tests on large diameter drilled shafts in Nigeria.

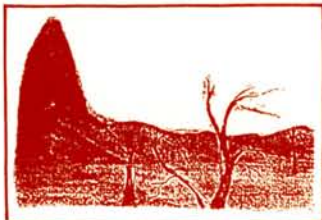
### MEXICO

PDPSA's PDA engineer, Antonio Mendez reports on an increased construction activity and therefore renewed interest in dynamic pile testing.

### SWEDEN

We have been informed that our European representative, Goeteborg's Betongpalar (GBP), has been merged into the worldwide Herkules organization which is now representing PDI in Europe and the Far East.

Bengt Gravare, C. J. Gravare and Stig Secund have formed the firm Europile Palteknik who have leased their first PDA. We wish them success.



*Jeannette Fenelon, of Melbourne, Victoria, Australia, saw the pile top force curves recorded on a 1.5 m diameter drilled shaft in 1982 at the West Gate Freeway. She envisioned the Australian landscape and painted a beautiful water colour for GRL. Thank you Jeannette.*

## FUTURE EVENTS WITH GRL-PDI PARTICIPATION

Feb. 6-10, 1989 University of Missouri, Rolla, Continued Education on Fundamentals of Deep Foundation Design.

Mar. 3, 1989, Geotechnical Group, Minneapolis, State of the Art in Dynamic Pile Measurements.

May 16-20, 1989: DFI, 3rd Int. Conference on Deep Foundations, London, UK

June 25-29, 1989: ASCE Geotechnical Division, Foundation Engineering Congress, Northwestern University, Evanston, IL

Aug. 1989, International Symposium of Offshore Engineering, Rio de Janeiro, Brazil

Aug. 1989, ISSMFE, International Conference of Geotechnical Engineering, Rio de Janeiro, Brazil

### UNITED KINGDOM

Roger Bullivant's PDA engineer Steve Burton now has received CAPWAP training. Bullivant's piles are often square concrete with at most 4 m section length. Epoxy splices are driven while they are still wet. CAPWAPC analyses yield good results.

Fugro McClelland is involved in a large testing program on 30" dia. steel piles which are later cleaned out and filled with concrete. Two PDA's are in continuous use. Their engineers took a short refresher course in CAPWAPPING.

## PIT NEWS

### LOW STRAIN PILE INTEGRITY TESTING

Engineers from both GRL and from firms in several countries and continents are using PDI's PIT. Currently GRL Colorado's Jay Berger prepares a demonstration test at the new US West's research facility at the University of Colorado Research Park.

Mel Browning of Law Engineering, Inc. in Charlotte, N.C. regularly discusses with GRL engineers results obtained from PIT on a project with many augercast piles.

## GRL OFFICES REPORT

### OHIO

In a special test series for AFCON, the first Balken System piles were installed in Cleveland and Newcomerstown by National Engineering and Brode Construction companies. GRL monitored the flawless installations.

### FLORIDA

Orlando office manager Mohamad Hussein reports about tests on 24" PSC and H-piles with respective lengths of 144 ft (44 m) and 230 ft (70 m). Several projects included very good static load test correlations like in one particular case where Mohamad's PDA calculated a totally unexpected safety factor less than 1 which was then confirmed by a static test.

### COLORADO

The schedule of Boulder office manager Jay Berger included extensive testing work at John Wayne's airport in Orange County, California. Testing objectives included assessment of stress, capacity and concrete quality.

### PENNSYLVANIA

Philadelphia office manager Wondem Teferra spent nearly two weeks offshore in the Gulf of Mexico. Besides taking measurements, Wondem performed CAPWAP analyses on site as soon as the data was available.

## IMPORTANT PROCEEDINGS AVAILABLE

Fellenius, Bengt, Proc. of the 3rd Int. Conf. on the Application of Stress-Wave Theory to Piles. Write to Dr. Bengt H. Fellenius, University of Ottawa, Dept. of Civil Eng., 61 Louis Pasteur St. Ottawa, Ont., Canada, K1N 6N5. Contains papers by GRL engineers.

Jewell, R.J., and Khorshid, M.S., "Engineering for Calcareous Sediments," Proceedings of the Int. Conf. on Calcareous Sediments, Perth, March 88, A.A. Balkema, Rotterdam, publisher. Contains paper by Hussein, Rausche, Likins entitled "Bearing Capacity of Piles and Conductors by Dynamic Analyses."

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