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«Expert Systems in Civil Engineering»
IABSE Colloquium, Bergamo, Italy, October 16 – 20, 1989

Some 120 attendants from 25 countries including Australia, the People's Republic of China, Japan, the Philippines, South Africa, the USA and Brazil participated in this first **international colloquium** on the subject. The colloquium was promoted by IABSE's Working Commission VI. Its former Chairman, Aksel G. Frandsen (DK), chaired the Scientific Committee in charge of defining aims, scope and subthemes as well as selecting the papers to be printed in the Proceedings and orally presented at the colloquium.

Professor Steven J. Fenves from the Carnegie-Mellon University, Pittsburgh, PA, USA, started the two-and-a-half day's discussions with an excellent introductory keynote lecture «Expert Systems: Expectations versus Realities» and summarized the results at the end. In between 33 lectures elaborated on the issues of Expert System Technology, the use of Expert Systems in operation, maintenance and damage assessment of structures and on possible contributions from Expert Systems to design and construction, as well as to the development and presentation of codes. Ample time was spent in discussing the issues among lecturers and the audience.

It became clear that Expert System Applications are still in the infancies. Expert System Technologies, however, and adequate and powerful new programming techniques are in full development. «It is the beginning of a new computer age addressing engineering reasoning, problem-solving and decision-making, not esoteric programming of mathematical models and calculating», stated Professor Fenves in his conclusions.

In fact, quite a number of different Expert System Shells ready to host specific applications are already on the market, prices ranging from less than 100 \$ to many thousand \$. Such shells mainly consist of four basic components: knowledge-acquisition tools, explanation facilities, the system interface and the inference engine. In combination with the working memory in the computer and the task-specific knowledge base, expert systems perform their reasoning tasks.

It is obvious that Expert Systems will never really take over from engineers but will be a kind of amplifier and accelerator for many engineering activities in addressing these functions. Expert Systems should not aim at giving simple and clear cut answers but elaborate on the relevant knowledge base towards good decisions to be taken by responsible engineers.

Also one of the ideas recently raised within and implemented by IABSE quickly takes its shape: the two day's **Short Course on Expert Systems** preceding the Colloquium was attended by some 60 people from 13 countries, only a few of them being experts in Expert System Technologies. The lectures were given by Professor David I. Blockley from the University of Bristol, UK, by Professor James H. Garrett Jr. from the University of Illinois at Urbana, USA, and by Dr. Ian F. C. Smith from the Swiss Federal Institute of Technology, Lausanne, Switzerland. Dr. A. Peano from ISMES, Bergamo, acted as the Course Director.

The course provided an excellent opportunity for people not familiar with the subject to acquire the necessary theoretical background for understanding what was pre-



Mr. A. G. Frandsen, in his opening address. Sitting: Dr. Riccioni, ISMES and Prof. Schneider, IABSE

sented in the colloquium to follow. Some 40% of the attendants of the Short Course also attended the Colloquium while the rest just left comfortably equipped with the basic knowledge on Expert System Technology and some ideas about possible applications.

The Italian Group of IABSE and ISMES, Bergamo, under the chairmanship of Dr. R. Riccioni, took perfect care of the organisation of both the Short Course and the Colloquium and provided for an extremely friendly environment. It was the sixth event of IABSE hosted by ISMES in an efficient way, this time under the lead of Dr. R.

Peano and Dr. E. Ronzoni and assisted by an extremely friendly and helpful staff. There is no doubt that IABSE will be happy to take advantage of ISMES's expertise in organizing IABSE events also in the future.

The Proceedings of the Colloquium, Report Volume 58 of IABSE, with over 400 pages and 38 contributions can be obtained at IABSE, ETH-Hönggerberg, CH-8093 Zurich, Switzerland at SFr. 72 for members of IABSE and SFr. 108 for non-members.

Jörg Schneider, Zurich



Prof. S. Fenves, in his concluding remarks

Plasticity in Structural Engineering

A Colloquium will be organized in honour of Prof. Dr. Bruno Thürlmann, retiring Professor of the Swiss Federal Institute of Technology, on Saturday, March 24, 1990 in Zurich. This Colloquium will be a series of lectures presented by eminent specialists worldwide on different topics related to Theory of Plasticity. The speakers will include Messrs Breen, Galambos and Tedesco, USA; Paulay, New Zealand; Knoll, Canada; and Sayir, Vollenweider and Bachmann, Switzerland.

Participation is free, but subject to registration for foreign guests, for organizational reasons.

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