



JULIO THE CODE MAKER

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Abstract

1.- Introduction

The title of this paper indicates that it is our intention here to honour the memory of Dr Julio Ferry Borges. However, what I shall try to do is only to remind to potential readers the profits and inspiration I got from Dr Borges, so that others too may take profit of his ideas and the paradigm he left behind him, post-mortem.

2.- Code making

Engineers of my generation were accustomed to a rather “military” mentality of Codes of good practice: A fragmantery presentation of clauses containing seemingly arbitrary (and frequently unconnected) rules to be just followed by their readers, almost blindly. Besides, researchers in the field of structural engineering were not attracted in Code-making; they were inclined to believe that Codes were just an insignificant “practical” books of recipes. It was mainly via CEB, the European Concrete Association, that such a snobbish attitude has changed; its past Presidents (among others F. Levi, and J. Ferry Borges) have conveyed our new philosophy of the intimate and articulated relationship between Research and Code-making. When I succeeded Ferry Borges in the presidency of CEB, I had only to continue his steps.

So much, that I am not sure to what extent my own ideas on the philosophy of Codes (e.g. Tassios 1991) are really mine or they were a mere reflection of what I learned from him about Codes:

Scope: Address public safety issues, offer assistance to Designers, be a Check locus to test models and to identify lacunae in research.

Means: Synthesis, Scrutiny, Calibration.

Features: Holistic design consideration, Conceptual design precedes, Rationality (through performance criteria/rational modelling/pluralism recognised/uncertainties duly covered), Transparency, Pragmatism, Logical format, Post-design issues addressed, Efficiency.

The spirit of Dr Borges' rationality is identified along these lines.

3.- The CEB Model Code for seismic design

The wind of drastic modifications in Codes during the seventies in Europe, could not leave unaffected the field of seismic design. Up to that moment, european codes for aseismic design were reflecting the state of the art of the fifties. To my knowledge, Ferry Borges was one of the few who inspired a turn for innovation in this area as well. The case of the so called CEB "Model Code for seismic design of concrete structures" should be mentioned here. In fact, Ferry Borges had the initiative to set a new CEB Committee; its task was the drafting of such a Model Code, drawing much from USA and New Zealand within however the rational framework of a CEB code format. I was a member of that Committee and I recall the inspiring lectures we heard from him on the basic issues and the way of their handling. (Around the same time he had chaired a IAEE Committee on "Basic concepts of seismic codes"). The final CEB document has served as an important input to the actual Eurocode 8, Part 1.3-2.

4.- Basic modelling

I wish to conclude this tribute to J. Ferry Borges with a recognition of a more personal debt: In spite of his favourable attitude towards practical solutions, he always recognised the potentiality of basic models in producing such practical (but rational) solutions. One of his early preferences in such modelling were the reinforced or prestressed concrete prisms under **cyclic loading**. Such prisms were thought to be sub-elements of fundamental importance; they offer good insight for crack development, stiffness degradation and ductility.

Under the guidance of J.Ferry Borges a systematic experimental work was initiated in this field as early as 1972 in Laboratorio Nacional de Engenharia Civil, Lisbon. And it is precisely thanks to these ideas developed in Portugal that I have worked out the FEM model predicting the cyclic behaviour of RC axial elements both under serviceability and ultimate limit state conditions. This was one among several occasions where Julio Ferry Borges work has inspired further research. Which explains our grateful feelings.

References

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