

In Memoriam Michel Degrange (1946 – 2010)



Michel Degrange left us on Friday, April 9th, at the age of 64, betrayed by a heart which was (too) big, to put it in the words of his boss, Professor Gérald Burdairon. And Michel's heart was so impressive. He was always ready to listen, he was close to everybody, whatever their rank or background. As close to the cleaning lady as to the dean, Michel lived simply.

Both an adhesion specialist and excellent researcher, he was a wonderful teacher and an outstanding general practitioner.

When he started taking interest in adhesion back in the early 1980s, he decided to start all over again from the beginning. He trained himself in the basics with solid physical chemistry specialists, starting with an energetic and thermodynamic approach of adhesion.

He soon specialized in the contact angle method, which enables evaluation of liquid/solid interactions, reversible work of adhesion, and thus allows predicting the adhesive potential of a substrate. His idea to apply Fowkes' latest results about acid-base interactions (1982) to dentin allowed us to show dentin's basic nature and explain – partly at least – the adhesive efficacy of acidic monomers.

He took special interest in methods to evaluate adhesion to biomaterials and dental tissues. But he was also critical towards *in vitro* testing, and in particular shear and tensile testing, which he soon considered limited. He often said that estimating *in vitro* the clinical performance of an adhesive required a reliable test applying fracture mechanics. He therefore threw himself into fracture mechanics. He decided to apply industry-derived tests, especially the DCB (Double Cantilever Beam) or Boeing test, to the adhesion of metallic substrates. Developments of this test allowed testing of fragile substrates, such as ceramic or dentin. Taking into account the rupture pattern by the crack propagation pattern fascinated him. I remember him watching the crack propagating for tens of minutes, marvelling about its acceleration when a single drop of water was added at the crack front. In such moments you could watch and feel his well-known curiosity, his enthusi-

asm, and his perseverance. He also managed to publish what he was researching. By conducting a retrospective study about adhesive bridgeworks in his own practice and comparing his clinical results with the laboratory test results, he proved that DCB adherence and a restoration's clinical durability were correlated (J Dent, 1994).

His passion for adhesion brought him to found the Journal of Adhesive Dentistry with his friend Jean-François Roulet. I still remember the break between two IADR sessions in Madrid, 1997, when both men hastily scribbled down the framework of what became the reference journal in adhesive dentistry.

Michel created and directed the largest dental materials laboratory in France. Many researchers came to pay him a visit (among them: Prof. Erik Asmussen, Prof. Uwe Blunck, Prof. Dorin Ruse). They all appreciated the scientist, the wit, the gourmet, and friend at one and the same time. At Paris Descartes University, twenty teachers at least owe their position to the education they received through Michel. He taught us rigor, determination, strictness, and passion. He communicated his need for understanding to us, as well as his desire for knowledge. He certainly knew how to rally and rouse us. Since January 1st 2010, his laboratory was officially labeled in the chemistry discipline under the code EA 4462. Continuity in his actions was an obsession. He often said "I'm only the tenant of this lab, not the landlord." He managed to maintain the continuity of his laboratory by training men and women who are proud of this affiliation and will take up the tenancy. In this spirit and to increase chances for the laboratory to continue on after he retired, in 2007 he invited Michael Sadoun (In Ceram ceramics inventor) – who accepted immediately – to work in the laboratory and develop a research focus in dental ceramics.

His talents as a teacher and trainer were widely known among his students and by a vast majority of the French practitioners as well. Nearly all of them listened to him at one point or another during scientific continuing education sessions. He was the first in France who truly made biomaterials accessible to a large audience by his clinical

approach. He really knew how to put things in simple terms. A few days before he passed away, he was still telling us he had got into the habit of never mentioning numbers in his lectures. "I single out comprehension of the mechanisms", he said. He took examples from everyday life so as to better explain complex phenomena. Hence, everything became clear. In order to allow biomaterials development in France, he founded with his friend Professor Bernard Picard the French Dental Biomaterials College (in French, Collège français de Biomatériaux Dentaires or CFBD, which later became the SFBD). Every year, he spurred on the best French specialists in the subject to meet and promote biomaterials knowledge in France. In the same way, he created with close friends a non-profit association, the Adhesive Dentistry Academy (in French the Académie de Dentisterie Adhésive), whose objective was to promote adhesive dentistry in France. First, a national organization was born, then regional branches followed. French adhesion could take off.

As time went by, Michel grew closer to the practitioner. He claimed and was convinced of the importance of the operator effect in the clinical performance of adhesive restorations. He was therefore of the opinion that *in vitro* testing, done by experts in laboratories, did not mean much. Taking up and developing his Swiss friends' idea (Ciucchi et al, 1995), he organized tens of practical workshops over a period of 10 years. More than 1700 dentists carried out 17,000 tests on 80 different adhesives. He showed these tests had an excellent external validity.

Last but not least, Michel was an outstanding practitioner. He had inherited his passion for well-done manual work from his father, who was a prosthodontist. He admired the talent of Roberto Spreafico and Didier Dietschi but he, himself, achieved perfect composite-stratification restorations. He recently delivered a lecture on traumas in children and his composite restorations were stunning, though realized in difficult clinical conditions. This competence and knowledge of day-to-day life always directed him towards relevant research subjects that were never cut off from reality.

With numerous students who are academic orphans since his disappearance and thousands of practitioners lapping up everything he said, Michel Degrange was probably the most famous researcher and teacher of our profession in France. Multifaceted, Michel Degrange could seem to be out of phase with our modern society, evolving towards ultra-specialization. It is often considered impossible to be an excellent researcher, an excellent clinician, and an excellent teacher in one. But Michel undeniably was.

There will probably never be another like him. The mold is broken.

Sincerely yours,

Jean-Pierre Attal, Gil Tirlet