

## On the nomination of Jacques Combault to the rank of Knight in the National Order of the Legion on Honor, speech by Jacques Combault

Jacques, Colleagues, Friends,

I can only be touched by Jacques Mathivat's kind words, which his lovely daughter Catherine read on his behalf, and it would be hypocritical of me to pretend that I am not proud to be here today.

NONETHELESS AT THE END OF ONE'S CAREER IT IS APPROPRIATE TO GIVE CREDIT WHERE CREDIT IS DUE, INCLUDING ADMITTING GOOD FORTUNE.

- First, to my family:

My father and my mother were members of the working class but I was lucky that they never stopped believing their children should be allowed to study and the chance to become « someone ». They are not able to be here tonight but I'm thinking of them and I know they're thinking of me with pride and happiness. I will take them a recording of this ceremony and watch it with them. With regards to my studies, you may be surprised to learn that I wanted to be a doctor, more precisely a surgeon. I was passionate about math, physics, chemistry and biology and didn't decide until my final year of high school to study engineering. It is a choice I don't regret.

I share this honor with my wife Danièle. She has taken good care of our family, has been of inestimable help to me, doing what I can't or don't know how to do, and has undeniably made it possible for me to live my professional life to the fullest. I feel fortunate to be by her side, and we make a very good team. We got married at the end of my first year at Centrale and had three children who have given us immense joy and satisfaction through the years. Daniele and I are also grandparents to seven grandsons that I have the pleasure of watching grow up. I'm proud that the oldest among them are able to be here tonight. I also share this honor with my children and grandchildren whose support and affection I deeply cherish.

- My good fortune also extends to my professional experience:

**JUST AFTER GRADUATION**, I went to work for Campenon Bernard. I received a warm welcome and was quickly put to work for the company by what I refer to as a magic trio: Jean Chaudesaigues, Jean Muller and Jacques Mathivat.

**JEAN CHAUDESAIGUES**, was, at the time the Technical Director of the company. He was a real Technical Director and an imposing man, with a foolproof way of showing it: he sat his guests down in a very comfortable, very low chair facing his impressive and suddenly very high desk, allowing them to feel the power of his function. Not a letter left the Technical Division without its author first initializing it and rereading it before signing it. Woe to the unfortunate soul who made a typographical error, like this one: “given the final phases, the structure’s modification should be equal to 5 millimeters + 2 millimeters, therefore a total of 8 millimeters.”

**JEAN MULLER** impressed in another way: his fabulous and untiring imagination. This was of course somewhat troubling to those who did not have as much imagination but it did create among the various planning teams a certain competitive spirit, as many of my colleagues from the day--who have honored me with their presence here tonight--can confirm. He could come up with such elegant, audacious solutions, so quickly just after seeing a project. For me, he is the indisputable inventor of the pre-fabricated segments that are now mass-produced by the millions across the globe, and especially in China.

**JEAN CHAUDESAIGUES** is no longer with us but I have adopted his excellent habit, and take great care in my correspondence, and I can’t help but think of him each time I receive an e-mail chock full of typos or correct an engineering student’s paper written in sms language.

**JEAN MULLER** passed away in 2005. I have many wonderful memories of the man and will share this little anecdote, which unfortunately begins with a tragic accident. In May 1980 during a trip I made to Florida to visit

some of the construction sites of works he designed, I decided to cross the Tampa Bay during lunch break, taking the impressive 8900 meter-long Sunshine Skyway Bridge. I remember being sorry not to have taken my camera. Later that afternoon, a mini-tornado swept through the region. At dawn a thick fog covered the bay and a ship collided with one of the main pylons of the Bridge and half of the imposing metallic structure fell into the water, striking a bus full of workers on their way to work. Several months later, Jean Muller and his US consulting firm won the bid for a new bridge, his project was chosen over that of another great bridge designer, the German Fritz Leonhard. In 1981, Jean asked me to train several American engineers in France on the cable-stayed bridge project he proposed: a carbon copy of the Brotonne bridge, but longer and quite a bit larger. We worked long days until late into the night, and of course everything was in English and I humbly admit that I was ready to hang things up at 8 PM. I couldn't understand how this man, 20 years my senior, could resist! I discovered his secret one afternoon when I went to see him in his office and found him peacefully dozing at his desk, after his lunch and one of his big cigars.

AS for you, my dear Jacques, you gave me the taste for a job rigorously well done: well-prepared meetings, solid justifications and well-structured publications. I don't know if, as you yourself like to say, one of your main qualities is to surround yourself with competent collaborators, but you trusted me and you gave the opportunity to head up the planning of several major projects, some of the most exciting challenges of their day, and I thank you for that. Though we only worked together for ten years, and in spite of our different directions and the great number and diversity of your projects, life has not kept us apart. You opened the door for me to teach higher education, and your wife Simone took advantage of an unforgettable congress in India to weave an indissoluble thread that binds us and several other dear colleagues together.

Yes, I was fortunate to have been named Director of detailed design team of the Brotonne bridge ; it was well beyond my capacities to lead such a project at the time and with the available means. But without this major experience, I never would have been invited to work with an outside

consulting firm on the Coatzacoalcos and Tampico bridges in Mexico, or on the Sunshine Skyway Bridge, or on any of the cable-stayed bridges like them.

With regards to the ‘available means’ of the time, I would like to issue a reminder that computer technology was not at all then as it is today. What can be put into a pocket today wouldn’t have fit into this room at the time. We worked with packs of perforated cards that had to be taken to one of two IBM calculation centers in Paris. We received the results in the form of long lists. We had to do all the calculations ourselves as there were no calculation applications at the time. I can still remember your face, Jacques, when you were waiting for the results of the Cherbourg interchange (the elliptical work that links the N13 to the periphery boulevard of la Défense) in order to finalize the planning stages, and our computer tech employee walked in with a list 50 cm thick, filled with zeros.

With regards to cable-stayed bridges, I sometimes wonder if I bring them bad luck. Jacques spoke about the vibrating cables, I also had to put out a fire at the Severn bridge site which led to the failure of a stay cable after a non suitable thermo welding of the duct» (specialists will admit that it takes talent to set fire to a tensioned component – see note below); and finally, a 300 metres long cable fell onto the deck of the Rion-Antirion bridge after a lightning strike.

I have spoken about the influence of the magic trio at Campenon Bernard. Now I wish to pay homage to the remarkable men in charge of the work sites and the construction of the structures designed by the company. I am so pleased that some of them could be here tonight, and wish to reiterate that the strength of the company, and of French companies in general, is the shared experiences that create a bond. I feel fortunate to have experienced and I hope contributed to this bond. This French technique was also palpable abroad and was responsible for our success many situations.

**Note: In French, the word “flamber” is used for both buckling and fire**

**I WOULD ALSO LIKE TO PAY TRIBUTE TO MY COLLABORATORS AND COLLEAGUES, SOME OF WHOM ARE HERE THIS EVENING. I AM VERY AWARE THAT PART OF THIS HONOR BELONGS TO THEM AND THAT THEY HAVE LEFT THEIR MARK ON THE WORKS WE DESIGNED AND BUILT TOGETHER.**

When I first began working, it was considered successful to spend all of one's professional life at one company. By the late 1970's when French companies had to set their sights on international markets (the beginnings of globalization), this way of thinking was turned on its head. Spend too much time in the same place and you might end up in the category of the non-ambitious. Of course this isn't what lead me to leave Campenon Bernard after 25years and join GTM International in 1993. It wasn't the Campenon Bernard - Société Générale d'Entreprise SGE merger in 1992 either. Even though this sort of event is by definition a little upsetting, I had already experienced and survived this sort of quake.

I moved to GTMI for the simple reason that they had a certain number of exciting projects abroad in various stages of the works. They were looking for someone with my profile to manage the complicated coordination of the different engineering teams that spanned international borders. I had the immense pleasure of meeting wonderful people that brought me into their respective teams. Spiro Agius, the Head of GTMI was an entrepreneur in the truest sense of the word.

I travelled a lot. I learned to love the earth as seen from the airplane window and to juggle with jet lag. I saw and learned a lot. Each project was a challenge and I experienced intense moments of satisfaction. I discovered another technical environment, construction techniques off-shore, concession contracts which were intensively developed by GTM and a lot of problems to be solved every day.

Since leaving GTM in 2001, various projects have kept me busy in France, of course, but also taken me to China, India, Japan, Chili, Portugal and the US where I have my professional opinion has been sought, and where I have intervned in various stages in a number of exciting projects. Please allow me to greet my Swiss and Portuguese colleagues, as well as Craig

Finley and his wife Teresa who have travelled from the US to be with me here tonight on this unforgettable occasion.

As you have, by now, no doubt understood, bridges are my passion. They have become my chosen area of expertise because they are both technical and a little complicated. I have taught about them, and continue to do so today. At the request of the director of the Civil Engineering and Construction Department at the National School of Civil Engineering, I created a course called « Bridge Project » for foreign students, in 2001. A special hello to you, my teaching colleagues here this evening, and thank you for the rich and varied contributions you make to the program. I would like to take this opportunity to inform you that I am counting on your continued presence in the course as I just received a letter from the director of the school informing me that my contract has been extended four more years, and can be renewed after that, a guarantee that I have a job, maybe only part-time at some point, until I'm 75 years old!

Isn't there great joy in doing what one believes is profoundly important? I ran for President of the International Association of Bridge and Structural Engineering for this very reason. Though it's more political than originally desired, I enjoy my role and thank those who encouraged me to run and have supported me since. It's a difficult job but I am not surprised. The Association is based in Zurich because that's where it was founded 80 years ago, and that is where the Administrative and Executive Committee meetings are held. I have to travel to Switzerland frequently, not for the reasons you might expect but to deal with the « modern problems » many professions face today: the multiplication of associations, internet business and its competitiveness, and the economic difficulties that require many professional organizations to reduce their budget and the time they spend on non-lucrative activities. Nothing can replace the fruitful dialogue with specialists, scholars, researchers, designers and builders from around the world, however. I never would have imagined this big international organization could bring me so much joy, but I love the Association because I love the work we do there.

At the risk of sounding pretentious, I am very proud of the things I have been able to do over the course of my career. It would be impossible however to rate my greatest satisfactions in a top 10 list, so I will just list the most recent ones.

I'm proud to have questioned and then revised, without which it couldn't have come to be, the project of the magnificent bridge over the gulf of Corinth, linking Rion and Antirion in Greece, with the help of eminent specialists and the support of the site Director:

- By suggesting that steel pipes replace the traditional concrete columns: Spiro Agius did not wish to be dependent on the only company capable of providing the concrete columns. I suggested the metallic tubes without knowing how we would justify them, I humbly admit! I also didn't know then that this solution would open new horizons! I had just joined GTMI who had been working on the project for over five years.
- By completely remodeling the pylons and simplifying their base, immersing them 65 meters deep, in order to be earthquake resistant and easier to make.
- By initiating the idea of suspending the deck to the right of the pylons and, thanks to an amazing group effort, by having progressively created the first and only bridge free to swing and move on the ocean floor during a major earthquake.

I am proud to have been part of the five-person committee of experts (representing five continents) named by the Transportation Ministry of the People's Republic of China to evaluate the feasibility of the Sutong Bridge over the Yang-tsé-Kiang, today the world's longest cable-stayed bridge with a central span of 1088 meters.

I am proud to have worked with Craig Finley on a prize-winning solution to a challenging motorway exchange problem in the heart of Miami. We won the bid and the Jury Prize for our project of a pre-fabricated deck.

**FOR ME THE MOST IMPORTANT QUALITY** is common sense. I have taught principles, I have perfected complicated calculations but at the end of the day I have come to realize that nothing can replace good, common sense.

**JACQUES**, we have had many wonderful moments together, wonderful moments that Simone, your lively wife (...) reinforced two years ago by creating the very exclusive Club des pont'ifs of several colleagues for whom I have great admiration and respect. Thank you so much for this honor.

**THANK YOU ALL ACCEPTING JACQUES MATHIVAT'S INVITATION TO BE HERE WITH DANIELE AND ME THIS EVENING FOR THIS GREAT HONOR. I THINK IT'S TIME TO HEAD FOR THE BUFFET THAT HAS BEEN WAITING, AS YOU HAVE, FOR THIS CONCLUSION.**

**THANK YOU AGAIN. GOOD EVENING .**