



Ambassador's Activities

2013

Distributor: French Embassy in the UK
- Press and Communications Services -
58 Knightsbridge, SW1X 7JT London
E-Mail: press@ambafrance-uk.org
Web: www.ambafrance-uk.org

Speech by HE Bernard Emié,
French Ambassador to the United Kingdom

at the round table “Inventing the Internet”
in honour of Louis Pouzin

Institut français, 26 June 2013

Ladies and gentlemen,

Cher Louis Pouzin,

It's a great pleasure for me to welcome this evening, surrounded by his peers, an outstanding ex-student of the *Ecole polytechnique* and researcher whose creativity is matched only by his modesty.

Cher Louis Pouzin, you're one of the inventors of the Internet. Everyone knows how profoundly this new information and communication tool has changed our society, infinitely stretching the limits of the possible. Today, nearly 2.3 billion of us – that is, one-third of the world's population – regularly connect to the Internet. And this number continues to grow exponentially: it's doubled in the last five years. Our society is in the grip of a veritable whirlwind that has completely changed our relationship with time and space, our access to knowledge and information, our professional and social relationships and our everyday lives. What people don't know much about, however, is how that fine adventure began. This prestigious Queen Elizabeth Prize for Engineering, presented to you yesterday by the Queen herself, is an opportunity for us to focus on the origins of the invention and, above all, get a full idea of the crucial role you played in it.

After graduating from the *Ecole polytechnique*, you were actually one of the few engineers in your year group to take an interest in computing, a still budding and unpopular discipline in the 1950s. It gives us an idea of your pioneering, visionary spirit! And even more boldly, you decided in 1963 to join the MIT, at a time when international mobility in the research world was far from fashionable.

Your collaboration with American researchers on the first time-sharing system enabled you to import this new concept to France. The skills you acquired in the process made you, above all, the ideal candidate to lead the ambitious Cyclades project at the French National Institute for Research in Computer Science and Control (IRIA). The project, launched by France in 1971, was aimed at developing a computer network, like the Arpanet project initiated by the Americans three years earlier.

It was in this framework that you invented datagram (later called packet) switching, which would be used extensively by Vint Cerf and Robert Kahn to fine-tune the Internet and the TCP/IP protocols in 1974.

In fact, the idea of delivering information in blocks between two machines wasn't new, but it didn't work perfectly due to the risk of mistakes being made or information lost in the transmission process. Your brilliant idea was to forgo such perfection in the network by imagining a second protocol that would enable the two machines themselves – the transmitting and the receiving computer – to check that all the information had indeed been received and, if not, retransmit it. Put more simply, your invention made it possible to shift a bit of the network's intelligence to the machine. Relieved of the fear of losing information during transmission, you even authorized packets to follow several routes, which I believe isn't true even of the Internet today.

And it worked: the first demonstration of Cyclades took place in 1972, and the network became operational in 1974. Political decisions, however, meant funding for Cyclades was halted in 1978 in favour of the Transpac network, which adopted a different technique developed by the telecommunications industry, a technique subsequently used for Minitel.

Although Minitel met with great commercial success, what has happened since shows that virtual circuits weren't ultimately the right choice.

So the Internet story's next chapter came to be written in the United States. But it's a source of pride for France that it was born thanks to you, in our country. France paid you an initial tribute by making you *Chevalier de la Légion d'honneur* in March 2003. But the Queen Elizabeth Prize for Engineering – which is comparable to a Nobel Prize and which you now share with Vint Cerf and Robert Kahn – is international recognition of your crucial contribution to the very origins of the Internet. Obviously I haven't forgotten the two other recipients of the prize, the Briton Tim Berners-Lee, to whom we owe the World Wide Web, and the American Marc Andreessen, who created the first fully-fledged browser (Mosaic). It was their inventions in the 1990s that gave the general public access to the Internet, thus sparking the social revolution I mentioned earlier.

The fact that you're a pioneer of the Internet doesn't mean you're not concerned for its future. As President of the *Société française de l'internet*, you're very critical of the Internet's current structure and governance. Allow me to quote your article for the *Société* in 2010: “The Internet's basic architecture (TCP-IP), which became operational in 1983, was suited to an experimental network. And it remained so. Security, naming, authentication, mobility and quality of service are absent from it, or dealt with by specific, disparate or proprietary applications.”

But you're not content with being critical. You're already working on a radical overhaul of the Internet's architecture, aimed at giving it an extensive range of services tailored to the diversity of users' needs. Among other things, you uphold multilingualism in the global

Internet community and are already suggesting to users personalized, open-root extensions, to break with the current economic model of allocating domain names.

Cher Louis Pouzin, you're not just an extraordinary researcher. You're also an unrivalled teacher. We're going to witness it together this evening: I know that listening to you, the most technical developments will seem very simple to us. I'm also keen to congratulate all the speakers at this round table, who are going to open up many avenues of discussion on the future of this great invention.

Finally, let me thank AX, the association of former students and graduates of the *Ecole polytechnique*, as well as Bruno van Parys, for organizing this event with us. It's also an opportunity to bring together the community of French *Ecole polytechnique* alumni and engineers in London. I'm very happy to be hosting you all this evening at the *Institut français* in London for this tribute to Louis Pouzin./.