Engineering History

One of the objectives of the Engineering Institute of Canada is "the promotion of awareness of the history of engineering" and the CSSE as one of the member societies of EIC has adopted the same objective. Engineering history seldom gets a high profile. When asked about engineering history some might reflect on the Industrial Revolution, others might go back to the Roman aqueducts and road system, the pyramids of Egypt and Maya, or the inventions of Aristotle and Leonardo Da Vinci (so well presented in the Montreal Museum of Fine Arts 1987 exhibition Leonardo Da Vinci: Engineer and Architect.)

Henry Ford said "history is more or less bunk" and he advocated that we should live in the present. He must have either not believed his own remark or had second thoughts because he collected antique machinery which led to the Henry Ford museum and Greenfield Village at Dearborn – now claimed to be the largest indoor-outdoor museum complex. Here in Canada we have our own museums across the country where to varying degrees they cover the history of engineering and technology. Members of EIC and CSSE are active in encouraging these museums which in today's funding climate need all the support we can offer.

Museums and organizations like Parks Canada recognize important individuals by the placing of plaques and entering them into the Hall of Fame. Members of today's engineering community play a role in ensuring that those who have made a significant contribution to engineering get acknowledged.

Going back to Henry Ford's comment one might ask "Does history matter?" It does not take much thought to recognize that our day-to-day engineering decisions are based on a large accumulation of information and practices from previous work. Understanding how and why this knowledge evolved helps us to understand how it should be applied today. In addition we have an ethical obligation to society to avoid repeating errors of the past – and it is hard to do that without understanding the past! Some are reluctant to associate with past failures, and data is often difficult to access with today's climate of legal and commercial security. Despite this our neighbor to the south has produced some impressive, though often lengthy, reports on major disasters. Ones that come to mind are their reviews of the Macondo Oil Well blow-out, the failure of the New Orleans levees during Hurricane Katrina and the two space shuttle disasters. Admiral Harold Gehman who chaired the Columbia Accident Investigation Board summed up succinctly by saying "History is not just a backdrop or a scene-setter. History is cause."

Engineering history has broader ramifications than reminding us of technology developments and past decisions in design, manufacturing and construction. Engineering is essential to our society wellbeing. Engineering and society are interrelated and each impacts each other. In ASME's review of history they suggest

that the invention of the cotton gin helped to start the American Civil War – an example of unexpected consequences. More beneficial examples are the Panama Canal and the development of the railways across Canada and the USA which changed the way people and goods travelled and enhanced trade.

Ten major engineering achievements received awards at the 1987 centennial celebrations of the first Canadian engineering institution. They were the transcontinental railway network built by the CPR, the St. Lawrence Seaway, the synthetic rubber plant of Polymer/Polysar at Sarnia, the Athabasca commercial oil sands development, the Hydro-Quebec very high voltage transmission system, the CANDU nuclear power system, the De Havilland DHC-2 `Beaver' aircraft, the `Alouette 1' orbiting research satellite, the Bombardier snowmobile and the trans-Canada telephone network.

There are some fascinating stories within engineering history – and lots of lessons to be learned. Fully researched engineering history publications take a lot of time and effort to complete. But there can be easier additions to our Archives by ensuring that past presentations, papers and photographs are consigned to the Archives rather than being dumped. Personal reminiscences can help in understanding how and why projects evolved. Members of CSSE have a large body of knowledge and experience which we would like to collect within our Archives so that in the future they can be located at an academic institution for the benefit of future engineers.

Don Lawson, Chair CSSE H&A Committee, Feb. 2012.