Links to full papers by Howells and Katznelson treating four historical cases of patents in development (available on event website).

Erroneous historical accounts of the role of patents in the development of aviation, incandescent light, the automobile and radio have persuaded patent scholars and government agencies that pioneer patents of broad scope hinder or block downstream technology development;

> "For a few notable commercial product inventions - Edison's incandescent lamp and the Wright brothers' airplane stabilization and steering system - broad pioneering patents were exercised in a manner that at least temporarily deterred competitors from making further improvements. The patent holders either aggressively enforced their rights or refused to enter into licensing agreements. Radio illustrates the possibility that when separate patent holders with broad enabling patents (in this case, Marconi Company, De Forest, and De Forest's main licensee, AT&T) cannot agree on licensing terms technological progress may be impeded for a time."

Patent scholars Merges and Nelson review the alleged evidence in these cases and,

> '...we come out with the belief that the granting and enforcing of broad pioneer patents is dangerous social policy. It can, and has, hurt in a number of ways....And there are many

> cases where technical advance has been very rapid under a regime where intellectual property rights were weak or not stringently enforced. We think the latter regime is the better social bet."

Merges and Nelson's review of the empirical evidence in these cases is cited in support of similar conclusions by others;

> 'licensing negotiations may be lengthy and costly or break down due to differences in valuations' (Federal Trade Commission 2003p19).

> 'It is by no means clear that patent protection is always either necessary, or sufficient, to ensure investment in innovation.'

> 'These facts suggest some theoretical limitations to the patent apologists' arguments'

Congressional Research Service (CRS) reports to Congress are reports intended to brief members of Congress on the factual background to policy issues; Schacht cites the 1990 paper's conclusions finding that.

> 'in a situation where only "a few organisations controlled the development of a technology, technical advance appeared sluggish"'

Follow-on Biologics: Intellectual Property and Innovation Issues.

Jon Soderstrom, President of the Association of University Technology Managers and Managing Director of the intellectual property management and licensing office at Yale

A review of the 2014 book “Birdmen” on the Wright brothers concluded,

> “[Orville Wright was a] vindictive SOB whose greed and begrudgery [sic] were surpassed only by those of his brother Wilbur… [the brothers were] cursed with an addiction to malice to anyone who challenged their primacy or stood in their path to riches” (Cooke 2014)

The purported tool of the Wright brothers’ “malice” was, of course, their patent. The lesson for today is erroneously drawn by the author of “Birdmen”, Goldstone;

Beach asserts that,

> "no manufacturer could have afforded to take that risk [of infringing the Wright patent] … as would be expected, the consideration asked by their owners was exceedingly high… [so high, that] the "deadlock was broken by the organization of the Manufacturers' Aircraft Association…"

Dykman writes:

> "During 1916 and culminating in January 1917, the Government was made aware of a vexing problem that just would not solve itself. The early aeroplane manufacturers not only were the most courageous of American entrepreneurs, they were first class inventors. They also were like our present day farmers, highly individualistic - meaning they were completely self-made and intended to stay that way - by themselves. Hence, any inventions made by these pioneers were consequently not offered for use by others on anything nearly approaching a royalty-free basis. The Assistant Secretary of the Navy, during January of 1917 (The Honorable Franklin D. Roosevelt), created a committee to confer with the aeroplane patent owners and manufacturers to arrange a solution to the problem of these patent owners indulging in the well-known Mexican Stand-Off under which the Government could only lose. No one would license the other under anything like a reasonable basis. Under these conditions, anything like a workable agreement between the manufacturers would be most welcome to the Government which had a war to fight"

Bittlingmayer's logjam statement is that,

> "some firms were reluctant to take contracts because of the threat of patent infringement suits

> have air travel because of legal luck and political will… Legislators could look to Europe to see what airplanes could do if gridlock were solved" (Heller 2008, p. 31).

The historian of aviation,

> "There are a growing number of companies, commonly called 'patent trolls,' who employ these litigation tactics as a business model — costing the economy billions of dollars and undermining American innovation. In the last two years, the number of lawsuits brought by patent trolls has nearly tripled, and account for 62% of all patent lawsuits in America. All told, the victims of patent trolls paid $29 billion in 2011, a 400% increase from 2005 — not to mention tens of billions dollars more in lost shareholder value"

The UN Secretary

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