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Patents and Innovations: Some Unconventional History Lessons

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Gaidar Forum, 12-14 January 2017, Moscow

The “pro-patent” era

Current international policy orientation is towards increasing the **scope** and the **strength** of patent regimes

Scope: extending patents to new domains (eg. patenting software, business methods, plants, etc.; inducing new actors such as universities to take patents…)

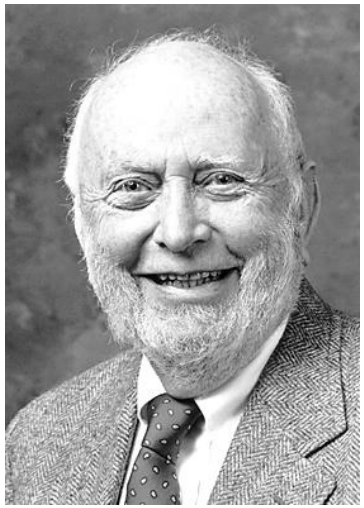
Strength: providing holders of these rights with more effective legal means for exploiting them (Federal circuit court in US, European patent,….)

At global level these trends are driven by TRIPS, TRIPS +,……

The standard rationale for patents

- Patents are necessary because without them there will be no investment in inventive activities
- Without patents, copying and imitation will dissipate the profits of the innovators preventing them from recovering their investments in inventive activities

D. North: patent system was a critical institutional foundation of the industrial revolution



"..Innovation will be encouraged by modifying the institutional environment, so that the private rate of return approaches the social rate of return...The development of patent laws provides such protection....**By 1700...England had begun to protect private property in knowledge with its patent law. The stage was now set for the industrial revolution.**"

[D. North and R. Thomas (1973), *The Rise of the Western World*]

"..The failure to develop systematic property rights in innovation until fairly modern times was a major source of the slow pace of technological change…[**A] systematic set of incentives to encourage technical change and raise the private rate of return of innovation close to the social rate of return was established only with the patent system."**

[D.North (1981), *Structure and Change in Economic History*]

“Heroes of invention”

The Distinguished Men of Science of Great Britain living in the years 1807-1808 assembled in the Library of the Royal Institution

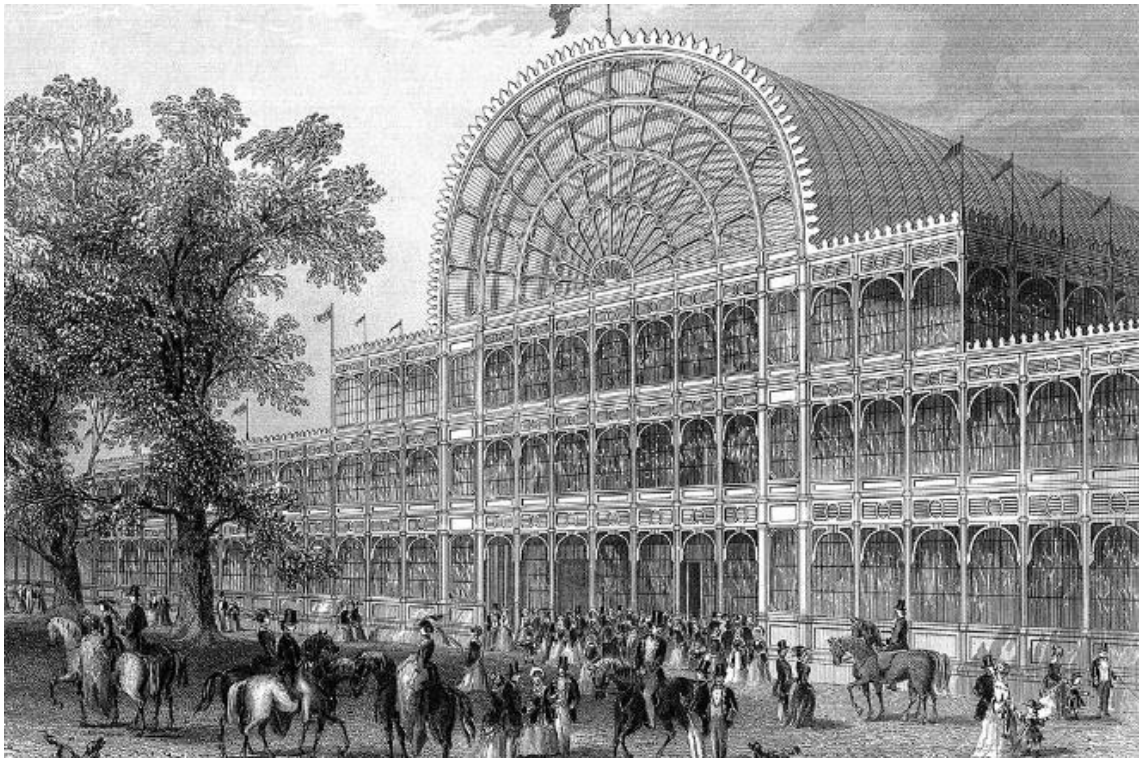
Engraving by W. Walker, 1862

Joseph Bramah's assessment of Watt's patent

"**Mr. Watt took his patent not for what he had invented, but for what he might invent in future. Thus says he, 'I will lay an indeterminate foundation, which will enable me to lock up the brains and hands of every inventive genius; and if any have the hardihood to stir in the great field of improvement, to make any saving in the expence of fuel….by any means whatever, I will have at them with the hammer of the Law…."**

Bramah, J., *A Letter on the Subject of the Cause Boulton & Watt v. Hornblower & Maberley….*, 1797

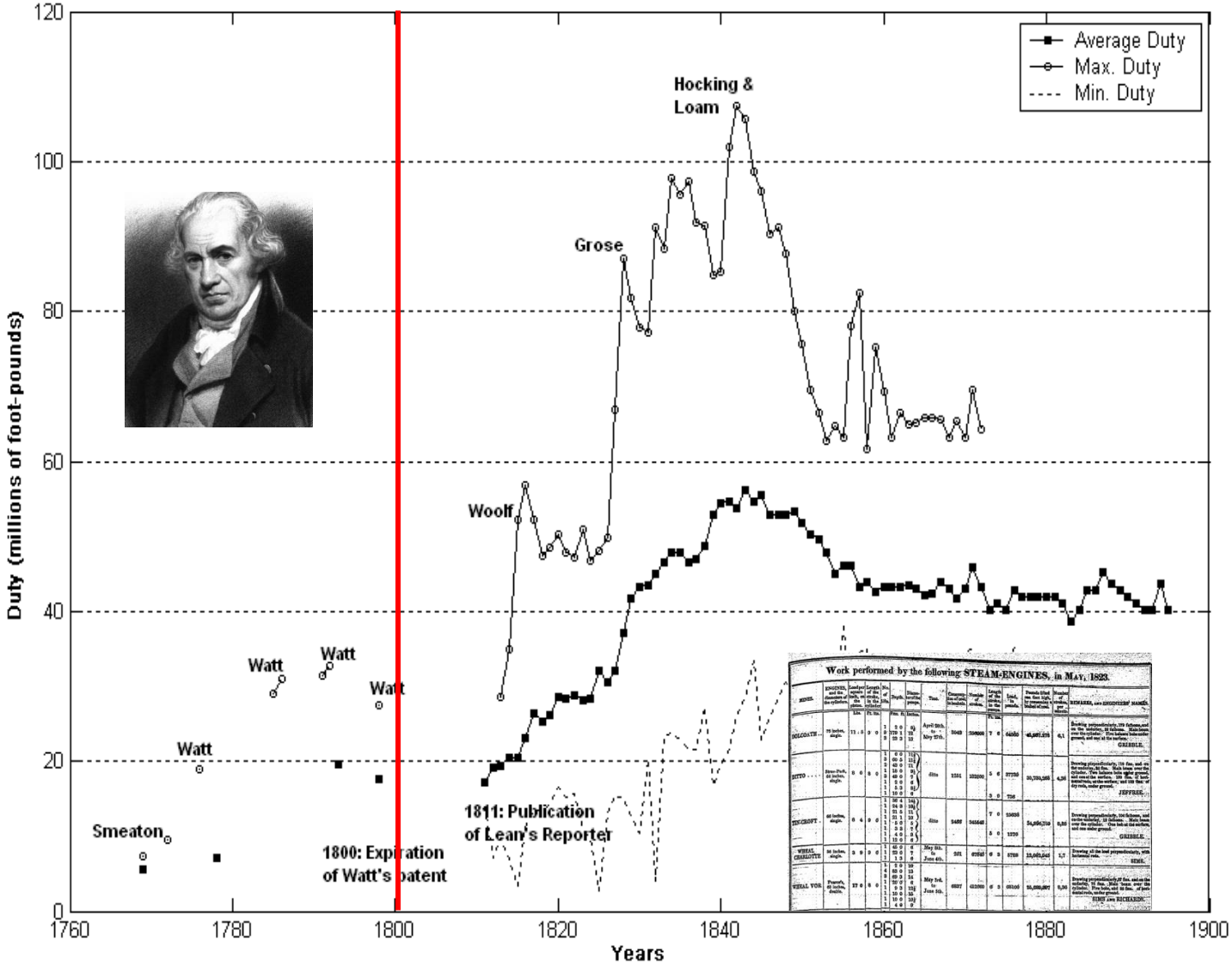
Many inventions were not patented….



Share of patented inventions at the Great Exhibition of Crystal Palace (1851):**10-12%**

(Moser, 2005)

Collective invention and the development of the Cornish engine (Nuvolari, 2004)



The historical significance of collective invention

" There are three reasonably well documented cases of successful collective invention [Allen, 1983; MacLeod, 1988; Nuvolari, 2004]…<u>Examples of such cases are not many</u> and they required rather special circumstances that were not common <u>and collective invention in its most extreme form, to judge from its short lifespans, was vulnerable and ephemeral</u>"

(Mokyr, 2008, p.22)

Knowledge sharing more widespread and a key-ingredient in the development of important technologies (Bessen and Nuvolari, 2016)

- **Cleveland blast furnaces (Allen, 1983)**
- **Cornish steam engines (Nuvolari, 2004)**
- **London clock-makers (MacLeod, 1988):**
- Lyon silk industry (Perez, 2002)
- Zaankstreek Windmills (Davids, 2009)
- Berkshire paper-making (McGaw, 1987)
- Western steam-boat (Hunter, 1949)
- Viennese chairs (Kyriazidou & Pesendorfer, 1999)
- Japanese cotton spinning (Saxonhouse, 1974)
- Coal-burning stove (Allen, 2009)
- Clover in agriculture rotations (Allen, 2009**)**
- Danish cooperatives (Faber, 1931)
- Power weaving in the US (Bessen, 2014)
- ….

Some contemporary examples

- Tesla "publicly realising" their patent portfolio (June 12, 2014)
  - "…When I started out with my first company….I thought patents were a good thing and worked hard to obtain them. And maybe they were good long ago, but too often these days **they serve merely to stifle progress, entrench the positions of giant corporations and enrich those in the legal profession, rather than the actual inventors…**….**We believe that Tesla, other companies making electric cars, and the world would all benefit from a common, rapidly-evolving technology platform**. …" (Elon Musk
- Toyota realising "fuel-cell" patents (January 6, 2015)

Conclusions

- Industrial revolution:
  - profits from innovators more from using and implementing new technologies than from patents
  - diffusion of innovations did not dissipate innovators' profits (e.g. Arkwright's mills)
  - conditions for knowledge sharing not uncommon
- Lessons for today:
  - More "cautious " approach towards patent policy is in order
  - Russia may play an important role in instigating this more sobering perspective

References

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- **MacLeod, C. and Nuvolari, A. (2016), 'Inventive Activities, Patents and Early Industrialisation: a Synthesis of Research Issues', *Rivista di Storia Economica,* vol. 32, pp. 77-107.**
- **Bessen, J. and Nuvolari, A. (2016), 'Knowledge Sharing among Inventors: Some Historical Perspectives' in Harhoff, D. and Lakhani, K. (eds.), *Revolutionizing Innovation: Users, Communities and Open Innovation*, Cambridge (MA): MIT Press, pp. 135-155.**