

The Economics of the Patent System**G. Hyland**by **Erich Kaufer**

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Four chapters with a comprehensive bibliography address technology's evolution from classical times to the early 20th Century. Each is well referenced with footnotes backed-up by primary and secondary references, e.g. 35 U.S. Code 101 as amended in 1952; "The Propensity to Patent" Scherer, F. M., International Journal of Industrial Organization, 1 (1983) p107-128; "Patents, Invention, and Economic Change" Schmookler, J., Harvard University Press, 1966. Chapters walk through 1) the Patent System in Historical Perspective, 2) an Overview of the Patent System's Operation, 3) the Pure Theory of Patent Protection and 4) the Pro and Contra of Patent Protection.

The patent system's foundation is briefly reviewed from opposing perspectives – Patents of Invention and the Anti-patent Movement. An overview of the system's operation follows – similarities and differences in national systems, changes in the inventive process and patenting trends, patents as an appropriation mechanism and the role of licensing. The scene set, one dives more deeply into protection theory via the Nordhaus model; optimal patents with compulsory licensing, competition, imperfect patents and rent seeking. The final chapter explores the pros and cons of protection with the social costs and benefits of the patent system; alternatives; the special problem of less-developed countries; closing with approaches to reforming the system.

The basis – Hugo of St. Victor's (1130AD) systematic view of science (logic, theory, ethics and *arte mechanicae*). King Wenceslaus II's *Constitutiones Juris Metallici* (1330AD, system of common law and specialized mining courts) lead to *Wasserkuenste* rights copy protected *sine ... licentia speciali*. Formalized "industrial property" rights thus come from Tyrol 600+ yrs ago. German speaking Europe also originated anti-patent philosophy – guilt by association, a misuse of Royal privilege (*hoechst schaedlich*). Swiss distaste rejected proposed protection laws by referenda until 1887. Tyrol's neighbors, the southern German territories circa 1800, even gave up the practice of rights grants. Once established the system developed – creative genius, everything under the sun... Intra-nationally, evolution by legislation/court decisions, e.g. *Gebrauchsmuster* (petty patents). Inter-nationally alignment takes time, e.g. Italy excluded drugs from patent protection till 1978; Japan allowed only one inventive claim per patent till 1975. Yet anomalies continue, e.g. the Swiss grant protection for process but not chemical substances; India limits protection duration on foodstuffs, drugs and agro-chemicals to 14 yrs, half its standard patent life, forcing compulsory licensing after 3 yrs. Nordhaus models the protection mechanism – cost reduction/royalty generation vs. societal deadweight loss; discount factor vs. protection duration; invention possibility (IPF) vs. optimal royalty rate. Tandon explains compulsory licensing. Stages (point of/post invention & protection expiration) clarify competition, imperfect patents and rent-seeking. Barzel, McFetridge-& Racfiquzzaman explicate further. The latter demonstrate 1.1 yr optimal lifetime, increased 5X by composite modeling. Beck extends further arguing uncertainty and future technological change impacts. *De facto* average patent economic life is 4 yrs (range: 2.8-5.6 yrs). Policy-makers strive to maximize social welfare, but patents incur social cost, e.g. national office (\$110M USPTO 1981). Abuse occurs by suppression of competing inventions or financial bullying, e.g. Carloboy (GE fluorescent lamps) sued tungsten carbide rivals 1930-40 intimidating them, imposing price restraints, and averted/delayed suits until 1940 when their patents were ruled invalid. Qua alternatives – competition prizes to stimulate invention have been used, e.g. the longitude measurement problem (Spain 1598, Britain 1713). Historical industrialization experience (NL, CH, D) shows there may be initial advantage to no patent law if domestic inventive capabilities sufficient to imitate others' technology, e.g. China's 1985 patent law denied patentability for chemical substances & process until establishment of viable chemical & pharma industries. Reform ideas include prospect-rights auctions – the right to invent/patent in a specific technology field, and compulsory licensing for patent non-use injurious to the public interest. Judiciously applied it has successfully opened up dominant market positions to more competition without seriously reducing R&D incentives. 500 yrs ago Venetia faced the same questions, developing similar solutions as today – variable patent lives, repeal of unused patents, free government use, grant with(out) compulsory licensing.

Overall – recommended: simply put, there's a lot in a small book. Quite complete; except for Machlup's paradox.