V. Assessment of the exemption in Germany from 1877 to 1967

The exemption in the German Patent Act of 1877 has been a rather formal exemption. The economic need to protect the inventions of certain industrial sectors has generated case law to bypass the exemption. The exemption in the German Patent Act of 1877 was made a formal exemption by the Amending Act of 1891 and the *Kongorot* decision, which acknowledged the patentability of analogous chemical processes.

Special fields of technology should not be discriminated against by an exemption to patentability, because the patent system *per se* is neutral.[106] It aims at giving the inventor an incentive to disclose his invention and rewards him for doing so.[107]

106 The first economic study performed on the patent system in 1958 by the American economist *Machlup* for the U.S. congress concluded as follows: "No economist on the basis of present knowledge, could possibly state with certainty that the patent system, as it now operates, confers a net benefit or a net loss upon society. The best he can do is state assumptions and make guesses about the extent to which reality corresponds to these assumptions." *Machlup*, An Economic Review of the Patent System – Study of the Subcommittee on Patents, Trademarks and Copyrights of the Committee on the Judiciary United States Senate Eighty-fifth Congress, second session, Study No. 15, Washington, D.C., 1958, 79. In spite of this difficult economic evaluation *Machlup* summoned the four theories underlying the patent system as following, *Machlup*, *supra*, 19 ss. The "natural law" thesis according to which the inventor has a natural property right in his own ideas. The "reward-by-monopoly" thesis considers the patent grant as an equitable remuneration of the inventor for his intellectual property work performed for the benefit of the community. The "monopoly-profit-incentive" thesis considers patent protection as an instrument for the promotion of technical and economic progress. Finally, the "exchange-for-secrets" thesis justifies patent protection with the obligation of the inventor to disclose his inventive idea to the public as early as possible. All four theories have in common that they do not distinguish between certain fields of technology. Thus it can be concluded that the patent system should be neutral for all fields of technologies. *Beier* confirmed in 1970, that the reward-by-monopoly, the monopoly-profit-incentive and the exchange-for-secrets thesis theories still apply to the policy aims of patent protection in most parts of the world, *Beier*, Traditional and Socialist Concepts of Protecting Inventions, 1 IIC 328 (1970), *Beier&Straus*, The Patent System and Its Informational Function – Yesterday and Today, 5 IIC 387, 392 (1977). *Adrian* points out, that neutrality of the patent system is limited by immanent borders by constitutional law, ordre public and morality, *Adrian*, Patentrecht im Spannungsfeld von Innovationsschutz und Allgemeininteresse, Berlin 1996, 16. Again, there is no distinction between different fields of technology.

107 Motives for patent protection are technical, economic and social promotion by protection of intellectual property of the inventor, awarding of the inventor himself, stimulation of the economy and encouraging the disclosure of technical knowledge. For an oveview see *Beier*, Die herkömmlichen Patentrechtstheorien und die sozialistsche Konzeption des Erfinderrechts, GRUR 1970, 1, *Oddi*, TRIPS – Natural Rights and a "Polite Form of Economic Imperialism", 29 Vanderbilt Journal of Transnational Law 415, 417 (1996).

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Socio-political battles should not to be fought at the expense of patent law. A patent grants an absolute right, so in this area legal certainty seems to be crucial. The potential infringer as well as the public should be certain about the scope of a patent in order to determine whether they are infringing this patent. Changing political circumstances therefore should not be relevant to the patentability of an invention.[108]

The exemption severely complicated the application procedure by introducing the possibility of an unclear definition of the scope of the exemption, because there are always border cases.[109] With *Straus*[110] it can only be concluded with regard to exemptions to patentability: „Controversies and differences of opinion are pre-programmed in this context." Furthermore, as *Straus*[111] put it with respect to the exemption to patentability of plant varieties according to Art. 53(b) EPC and Art. 27(3)(b) TRIPs exemptions to patentability bear the danger of "petrification ... in patent law in a field that urgently requires a dynamic legal response to developments in science and technology."

108 The relatively low flexibility of the patent sysem is mirrored by following quotation: „The patent community clings religiously to the one-size-fits-all credo, preserving the inertia of the system against the business concerns of particular industries, and preserving it against scrutiny that might lead to an empirical understanding of costs and benefits - and winners and losers. Designed for an industrial economy and resistant to change, the system has become complex and opaque in its application to a diverse, networked economy based on information and services. *Kahin,* "The Expansion of the Patent System: Politics and Political Economy, First Monday, volume 6, number 1 (2001), available at http://firstmonday.org/issues/issue6_1/kahin/index.html.

109 In context with the exemption to patentability in Art. 27(3)(b) TRIPs. *Straus*, Implications of the TRIPs Agreement in the Field of Patent Law, in: *Beier&Schricker* (eds.), From GATT to TRIPs – The Agreement on Trade-Related Aspects of Intellectual Property Rights, Weinheim 1996, 160, 185.

110 In context with the exemption to patentability in Art. 27(3)(b) TRIPs. *Straus*, Implications of the TRIPs Agreement in the Field of Patent Law, in: *Beier&Schricker* (eds.), From GATT to TRIPs – The Agreement on Trade-Related Aspects of Intellectual Property Rights, Weinheim 1996, 160, 185.

111 *Straus*, Implications of the TRIPs Agreement in the Field of Patent Law, in: *Beier&Schricker* (eds.), From GATT to TRIPs – The Agreement on Trade-Related Aspects of Intellectual Property Rights, Weinheim 1996, 160, 185.

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Consequently exemptions to patentability complicate the patent system, which intends to reward the inventor, and finally they hinder economic growth. Furthermore, an exemption imposes commercial disadvantages on a country in global competition, whenever other countries do not exclude the respective subject matter from patentability. The dramatically declining field trials of genetically modified plants in Europe in comparision to the U.S. mirror the exemption to patentability of plant varieties under the EPC whereas the U.S. allows patents for plant varieties.[112] Moreover there is almost no significant cultivation of genetically modified plants in Europe[113], whereas the share of transgenic corn in the U.S. was 38% of the complete U.S. maize acreage.[114]

All in all the exceptional position of the food sector is mirrored in the exemption and in a need to keep food-related inventions free from patent protection. Basically it was this need that caused the exemption in the German Patent Act of 1877.

112 For the exemption to patentability of plant varieties see Part III, section II, subsection 1. Since June 1996 the field trials performed in the EU has been declining by two thirds, *Menrad et al*., Review of GMOs under Research and Development and in the Pipeline in Europe, 69, Figure F1, European Science and Technology Observatory of the European Commission 2003, available at www.jrc.es, 69, Figure F1. See also *Straus*, Measures Necessary for the Balanced Co-Existence of Patents and Plant Breeder's Rights – A Predominantly European View, Doc. WIPO-UPOV/SYM/02/07 (2002), 2.

113 In 2005, only 0,1 million hectares of transgenic plants were cultivated in Spain, which constituted the biggest area of transgenic plants in Europe. Other European countries that commercialized transgenic plants were Germany, Portugal, France and the Czech Republic *James*, Executive Summary of Global Status of Commercialized Biotech/GM Crops: 2005, ISAAA Briefs No. 34, Ithaca, NY 2005, 4 s. A future use of plant biotechnology in Europe could lead to enormous harvest increases, lower production costs and less need for crop protection. It was estimated that the harvest of maize, sugar beet and potatoes would increase by 7.8 million tons and the net farmers' income would increase by €1 billion with 9.8 million kg less agrochemicals. *Gianessi et al.*, Pflanzenbiotechnologie: Potenzial zur Verbesserung des Pflanzenschutzes in der europäischen Landwirtschaft – Eine Zusammenfassung von drei Fallstudien, National Center for Food and Agricultural Policy, Washington 2003, 3.

114 In 2005, 49,8 million hectares of transgenic plants were cultivated in the U.S., *James*, Executive Summary of Global Status of Commercialized Biotech/GM Crops: 2005, ISAAA Briefs No. 34, Ithaca, NY 2005, 4 s. The positive impacts of transgenic plants in U.S. agriculture has been recently described by *Sankula et al.*, Biotechnology Derived Crops Planted in 2004 – Impacts on US Agriculture, National Center for Food and Agricultural Policy (2006), 100, available at www.ncfap.org.

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B. Patentability of food under the TRIPs Agreement

As Germany excluded food from patentability from 1877 to 1967, so have many emerging or developing countries excluded food from patentability until recently. At the start of the TRIPs negotiations, 35 countries of the 92 Paris Convention Members excluded food from patentability.[115] Furthermore, 9 countries excluded food-related processes[116] and microorganisms[117] from patentability.

115 Australia (where the Commissioner can refuse to grant a patent therefor where the product is a mere mixture of known ingredients), Bolivia, Brazil, Bulgaria, Canada (unless produced by processes also claimed or their equivalents), China, Czechoslovakia, Colombia, Cuba, Denmark, Ecuador, Egypt (as regards chemical inventions), Finland, German Democratic Republic, Hungary, Iceland, India, Libya (as regards chemical inventions), Malawi, Mexico, Mongolia, New Zealand (where the Commissioner can refuse a patent therefor), Norway, Peru, Poland, Portugal, Republic of Korea, Romania, Thailand, Tunisia, Venezuela, Viet Nam, Yugoslavia, Zambia (where the Registrar can refuse a patent therefor where the product is a mere mixture of known ingredients), Zimbabwe (where the Registrar can refuse a patent therefor where the product is a mere mixture of known ingredients), WTO, Existence, Scope and Form of Generally Internationally Accepted and Applied Standards/Norms for the Protection of Intellectual Property, Negotiating Group on TRIPs, Existence, Scope and Form of Generally Internationally Accepted and Applied Standards/Norms for the Protection of Intellectual Property, Doc. MTN.GNG/NG11/W/24 (1988), p. 31.

116 Australia (where the Commissioner can refuse a patent therefor where the process produces a mere mixture of known ingredients by mere admixture), Brazil, Colombia (unless if exploited in Colombia), Denmark, Malawi, Mexico, New Zealand (where the Commissioner can refuse a patent therefor where the process produces a mere mixture of known ingredients by mere admixture), Zambia (where the Registrar can refuse a patent therefor where the process produces a mere mixture of known ingredients by mere admixture), Zimbabwe (where the Registrar can refuse a patent therefor where the process produces a mere mixture of known ingredients by mere admixture), Negotiating Group on TRIPs, Existence, Scope and Form of Generally Internationally Accepted and Applied Standards/Norms for the Protection of Intellectual Property, Doc. MTN.GNG/NG11/W/24 (1988), p. 32.

117 Brazil, Cuba, Czechoslovakia (if used in industrial manufacture), German Democratic Republic, Hungary, Malaysia (except for man-made living micro-organisms), Spain, Romania, Yugoslavia, WTO, Existence, Scope and Form of Generally Internationally Accepted and Applied Standards/Norms for the Protection of Intellectual Property, Negotiating Group on TRIPs, Existence, Scope and Form of Generally Internationally Accepted and Applied Standards/Norms for the Protection of Intellectual Property, Doc. MTN.GNG/NG11/W/24 (1988), p. 32.

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