

Universität Bremen

**Gunnar Heinsohn
Otto Steiger**

**Witchcraft, Population Catastrophe and
Economic Crisis in Renaissance Europe:
An Alternative Macroeconomic Explanation –
With an Appendix by John M. Riddle**

(2nd, enlarged version)

**IKSF Discussion Paper No. 31
December 2004**

**Institut für Konjunktur- und Strukturforschung
(IKSF)**

Wilhelm-Herbst-Str. 5
D-28359 Bremen, Germany
E-mail: iksf@uni-bremen.de

Contents

<i>Abstract</i>	3
Witchcraft, Population Catastrophe and Economic Crisis in Renaissance Europe: An Alternative Macroeconomic Explanation <i>by Gunnar Heinsohn and Otto Steiger</i>	5
I The Great Witch Hunt: Macroeconomic Explanation <i>versus</i> Micro Psychological Perspective.....	5
II Background of the Great Witch Hunt: The Little Ice Age, the Population Catastrophe and the Loss of Manpower	7
III The Suppression of Medieval Birth Control: The Content of the Witch Hunts	9
IV Midwives: The Prime Target of the Witch Hunts.....	15
V The Disappearance of Medieval Birth Control.....	19
VI The Dramatic Rise of Birth Rates and Population Growth	24
VII The Great Witch Hunt in the War Against Birth Control.....	28
<i>Appendix</i> – The Great Witch-Hunt and the Suppression of Birth Control: Heinsohn and Steiger's Theory from the Perspective of an Historian <i>by John M. Riddle</i>	29
<i>References</i>	32

Witchcraft, Population Catastrophe and Economic Crisis in Renaissance Europe: An Alternative Macroeconomic Explanation*

*Gunnar Heinsohn** and Otto Steiger****

*With an Appendix by John M. Riddle*****

Abstract

Until today, a sufficient explanation of the Great European Witch Hunt is lacking, because historians of witchcraft restrict themselves to a micro perspective by merely consulting primal trial sources to identify individual psychological factors behind the witch persecutions. Therefore, a recent macroeconomic explanation of the suppression of witchcraft by Emily Oster (2004) is welcome as a most appropriate endeavor. While Oster explores a possible

* For inspiring comments the authors thank Emily Oster, Harvard University, and for valuable references Cornelia Boltz, Alzey, and Karin Steiger, Bremen. Boltz is also acknowledged for a careful reading of the text.

** Professor of social sciences. Universität Bremen, FB 11 / Raphael-Lemkin-Institut, Bibliotheksstr. 1, D-28359 Bremen, Germany. E-mail: gheins@uni-bremen.de.

*** Professor of economics emeritus. Universität Bremen, FB 7 Ökonomik / IKSF, Wilhelm-Herbst-Str. 5, D-28359 Bremen, Germany. E-mail: osteiger@uni-bremen.de.

**** Alumni Distinguished Professor of History, North Carolina State University, Department of History, 161 Harrelson Hall, Raleigh, NC 27695-8108. E-mail: riddle@social.chass.ncsu.edu

connection between witchcraft trials and deteriorating economic conditions due to the Little Ice Age, the authors' paper focuses on the European Population Catastrophe due to the Little Ice Age *and* the Black Death of 1348-1352. By simultaneously addressing the timing, content and target of the witch hunts, the authors offer an alternative macroeconomic explanation.

The time of early Renaissance Europe, with the extreme losses of labor in the wake of the Little Ice Age and the Great Plague, brings about the Great Witch Hunt. Its content is the repression of the highly developed culture of artificial birth control of the Middle Ages, especially contraception and abortion, which in late medieval and early modern times deprives feudal and ecclesiastical lords of the manpower required to regain economic prosperity. Its target are the foremost experts of medieval birth control, the "midwives = witches". The thesis is discussed with respect to ecclesiastical and secular laws of the 15th and 16th centuries punishing all forms of birth control, the disappearance of medieval birth control knowledge in early modern times, and the dramatic rise in birth rates leading to the European Population Explosion of the 18th century. While the midwives are the prime target during the Great Witch Hunt, suppression of contraception and abortion continues after the end of the persecutions by other methods, making knowledge of birth control the great taboo of the Occident until the 1960s.

At the end of their paper, the authors add an appendix by John M. Riddle, the great authority in the history of birth control, scrutinizing their theory from the perspective of an historian.

Witchcraft, Population Catastrophe and Economic Crisis in Renaissance Europe: An Alternative Macroeconomic Explanation

Gunnar Heinsohn and Otto Steiger

“ ‘Il n’est force ni richesse que d’hommes‘ (Men are the only strength and wealth).” Jean Bodin, mercantilist economist, witch hunter and universal genius of the Renaissance, as quoted in Mols S.J. 1974 [1972], 35.

I The Great Witch Hunt:

Macroeconomic Explanation *versus* Micro Psychological Perspective

An attempt at an economic explanation of a monstrous historical event like the Great European Witch Hunt during the 15th to 17th centuries appears to be most provocative. After all, historians of witchcraft usually restrict themselves to a micro perspective by merely consulting primal trial sources to identify individual psychological factors of witch persecutors or a witch craze in the population at large. Thereby, they evade research into large-scale, macro causes of why the Great Witch Hunt exactly happens in Renaissance Europe, a period which, after all, experiences a virtual explosion of enlightenment and humanism.

Emily Oster’s (2004) macroeconomic explanation of the Great Witch Hunt, therefore, is welcome as a most appropriate endeavor because, after

hundreds of micro level studies, the historical profession has to concede even today that “*until now a sufficient explanation*” of the Great Witch Hunt is lacking (Ostermeyer and Beier–de Haan 2002, 12). This is not much progress from twenty years ago when an American specialist despaired in the face of “the greatest enigma of the least understood era in modern history” (Klaits 1985, 8).

Oster (2004, 216) explores a possible connection between witchcraft trials and a deterioration of economic conditions caused “by a decrease in temperature and resulting food shortages” due to the Little Ice Age. By a statistical analysis of several European countries she finds a correlation between weather induced economic downturns and the number of witch trials. Whenever harvests decline witch trials increase, and when the economy grows trials slow down. Only at the junction between the two phenomena Oster resorts to “violent scapegoating” as a psychological factor tying the economy to the killings. “Citizens blame other ethnic groups for deterioration in economic conditions” (225).

II Background of the Great Witch Hunt: The Little Ice Age, the Population Catastrophe and the Loss of Manpower

We offer an alternative macroeconomic explanation of the Great Witch Hunt which does not resort to psychology to incorporate the main, female, victim group.¹ However, we do not deny the psychopathic aberrations that surface in every major persecution, which temporarily allows a society's most disturbed members to indulge in atrocious activities. Like Oster, our explanation starts with the devastating food shortages caused by the Little Ice Age whose beginnings in Europe we, in accordance with J. C. Russel (1972 [1969], 51 f.) and in opposition to Oster (2004, 218), date to 1303.² “The extreme cold and rainy years 1315-1318 were a catastrophe for Europe, with especially torrential rain falls during harvest time in autumn. ... The famines at that time were devastating Europe *everywhere*. Eventually, the years 1335-1352 experienced a nearly uninterrupted period of crop failure all over Europe” (Nordberg 1984, 34 f.; emphasis added; and see Russel 1972 [1969], 54).

Famines at that time demand a high death toll. “Sheer death by starvation was perhaps exceptional. But on the other side, the famines led to large-scale malnutrition, with high mortality caused by different diseases which quickly broke down the many weakened people”. In the French town of Périgeux, for example, the number of households, “*feux*”, between 1330 and 1345 decreased from 2,450 to 1,225 (Nordberg 1984, 35 f.). Unlike Oster, therefore, we take

¹ See more detailed Heinsohn and Steiger 1989 [1985]; and see Heinsohn and Steiger 1979a, 1979b, 1980, 1982, 1983, 1997, 1999, and 2004; see also Heinsohn, Knieper and Steiger 1986 [1979], 46-83.

² While recognizing that temperature drops already in the beginning of the 14th century, Oster (218), like most historians, dates the start of the Little Ice Age to the 16th century, with “the coldest segments in the 1590s and the period between 1680 and 1730”.

into account not only the economic downturn caused by poor weather conditions but also the accompanying demographic decline³ which starts at the onset of the Little Ice Age.

The population decrease of the early 14th century turns into the so-called European Population Catastrophe caused by the Black Death between 1348 and 1352 cutting down population by about 25 % (Russel 1972 [1969], 41 and 55; and see Nordberg 1984, 34-36). “In terms of the rate of mortality this plague was incomparably the greatest catastrophe that has befallen Western Europe in the last thousand years – far greater than the two World Wars of the present century together” (Cohn 1970 [1957], 131). The catastrophe is aggravated by the great famine of 1368 and additional occurrences of the Great Plague in 1360/61, 1369-1374, 1380/81, and 1385 which reduce the population by another 20 % (Irsigler 1984, 50). Europe’s population drops abysmally from some 73-77 million in 1300 to less than 45 million in 1400 (Clough and Rapp 1975, 52; Irsigler 1984, 50).

Estimates for England give a maximum of more than six million inhabitants for 1300 and a minimum of 2.3 million in 1400 (Hatcher 1977, 71). In estates of the Church in England “mortality reached about 50%, in one case as much as 65% ... for male tenants above the age of twenty alone” (Nordberg 1984, 32). The combination of rising mortality and peasant upheavals – starting in 1306 in Scotland – results in the crisis of European feudalism where “labour had *everywhere* become scarce” (Brenner 1978, 129): “Since the Black Death there had been a chronic shortage of labour” (Cohn 1970 [1957], 198).

³ “Implying that population growth parallels economic growth“, Oster (223) is aware of a correlation between a decline in population and a rise in the number of witch trials. However, she never even asks for the basis of this correlation: a lack of manpower – see this section below – which induces authorities to pursue a forceful policy of repopulation, with witch hunting as its most extreme weapon (see section V below).

III The Suppression of Medieval Birth Control: The Content of the Witch Hunts

In accordance with Nachman Ben-Yehuda's (1981, 336; emphases added) postulate that the motivating factors behind witchcraft accusations have to be explained by simultaneously addressing "the *timing*, *content* and *target* of the witch hunts", we offer the following alternative macroeconomic explanation. The time of early Renaissance Europe, with the extreme losses of labor in the wake of the Little Ice Age and the Great Plague, brings about the Great Witch Hunt. Its content is the repression of the highly developed culture of artificial birth control of the Middle Ages, especially contraception and abortion, which in late medieval and early modern times deprives feudal and ecclesiastical lords of the manpower required to regain economic prosperity. Its target are the foremost experts of medieval birth control, the "midwives = witches".

The obsession of Renaissance rulers and early mercantilist economists with a policy of repopulation, the supposed necessity of a large population as one of the fundamental sources of the wealth of nations, is well known. Historians of economic thought who, like Charles Stangeland (1904, 118-223), analyze the role of population in the mercantile system and the texts of mercantilist and other writers, focus on four methods of encouraging population increase discussed during the Renaissance: (i) by placing various disabilities on celibates, (ii) by encouraging marriage directly, (iii) by encouraging fecundity, and (iv) by favoring immigration. With respect to the third method, however, only the assistance for support of large families is mentioned, like in France, the granting of "rewards for ten or twelve children legitimately begotten" (128). The idea that such a huge number of offspring can be – and is – brought about much more easily, and effectively, by the suppression of birth control has completely evaded historians of mercantilist thought. However, such an idea is clearly outlined and proposed in the most influential writings of at least one eminent mercantilist author: the founder of the quantity theory of money, member of the

French parliament and forceful advocate of the persecution of the witch midwives, Jean Bodin (Heinsohn and Steiger 1999 and 2004; and see fn. 4 below).

Like Oster (217), we refer to the *Malleus Maleficarum*, or *Witch-Hammer*, of 1487 as the principal text for the witch hunts. Unlike Oster, however, we consider it also the main text for identifying time, content and target of the persecutions.⁴ This voluminous book appears in a time of severe famines due to colder weather and with huge losses of population, especially that of 1437/38 (Irsigler 1484, 50). It serves as the legal commentary on the famous *Witch-Bull* passed by Giovanni Battista Cibò immediately after he became Pope Innocent VIII in 1484. The *Witch-Hammer's* content is concerned not only with traditional acts of *sorcery* like weather, animal, and harvest magic. For the first time and relegating sorcery to second rank, this law defines a new crime, that of *witchcraft* which becomes immediately punishable all over Christendom.⁵

Of the historians of the Great Witch Hunt very few take a look at *Witch-Bull* and *Witch-Hammer*. All of them focus on age old sorcery which, however, was always persecuted. Therefore, they – and, despite her criticism of mainstream research, Oster (217) too⁶ – fail to notice the intriguing innovation of witchcraft for which both the *Witch-Bull* and the *Witch-Hammer* are issued in

⁴ While the *Witch-Hammer* stands alone in serving investigators, judges and executioners of the Hapsburg World Empire for nearly a century, another principal text, Bodin's *Démonomanie* of 1580, provides a similar tool for the Kingdom of France. The *Démonomanie* is merely an updated version of the *Witch-Hammer*, a "*Malleus Renovatus*"; see Heinsohn and Steiger 1999, 432; and see 2004, 468.

⁵ By distinguishing between "Sorcery" and "Witchcraft" in two different entries, Rossel Hope Robbins (1959, 471-474 and 546-551) realizes that witchcraft means a new crime without, however, succeeding to demonstrate how it differs from traditional sorcery.

⁶ Oster's (225) hasty treating of traditional sorcery as equivalent to the *Witch-Bull's* concept of witchcraft is confirmed by her illustrating this very peculiar crime of the late 15th century with the acts of female sorcerers killed in modern Tanzania.

the first place. The commentary forcefully condemns the peculiar crimes inflicted by the witches, “*besides* other animals and fruits of the earth with which they work much harm”. Because these harms are the conventional crimes of sorcery, the commentary adds: “All these will be considered later; but for the present let us give our minds to the injuries towards men [human beings]” (Kramer [Institoris] and Sprenger 1487, 47; emphasis added).

Laws and commentaries condemning long-established sorcery were available all the time. Therefore, in 1484, there is no necessity to put forward a new law without a new content. Of course, by dealing with the *Witch-Bull* as a universally binding law, the *Witch-Hammer* has to inform about *all* forbidden acts of magic to turn the persecutors’ attention to the new ones which so far they were not trained to detect.

What is new in the *Witch-Bull*? In its opening statement, Innocent VIII gives a clear account of his intent “that the Catholic Faith should especially in this Our day *increase* and flourish everywhere” (1484, xlv; emphasis added). As specified by the *Witch-Hammer* “increase” means procreation of the Church’s subjects (see below). The law, therefore, decrees death penalty for “many persons of both sexes ... who by their incantations, spells, conjurations, and other accursed charms and crafts, enormities and horrid offenses, have *slain infants yet in the mother's womb*, as *also* the offspring of cattle, have blasted the produce of the earth ...; *they hinder men from performing the sexual act and women from conceiving*” (xlv; emphases added).

By putting the misdeeds “in the mother’s womb” at the beginning, the Bull emphasizes that these new crimes are more dangerous than the traditional ones which, of course, “also” occur and have to be punished as before. The higher importance of the new crime by degrading the traditional ones to an “also”-position is reflected in the *Witch-Hammer* where they are mentioned “besides” the new ones (see above).

What is new in the *Witch-Hammer*? Its “Apologia” states outright: “This work is new and simultaneously old” (Sprenger 1487, I, xlv). The commentary on the Bull intends to teach the witch hunters about their *new* duties deriving from the equally *new* definition of witchcraft as *birth control* (part I, section 6 entitled “Concerning Witches who copulate with Devils”; Kramer [Institoris] and Sprenger 1487, 41-48). No reference to the “old” weather sorcery is made. The concept of birth control is divided into “seven methods by which they [the witches] infect with witchcraft the venereal act and the conception of the womb” (47). The *Witch-Hammer* confirms the *Witch-Bull’s* intent of “increase” and emphasizes that it is designed “in relation to the duty of human nature and *procreation*” (part I, section 4, 29; emphasis added). Heresies are dealt with in Innocent’s bull *Malleus Haereticorum* of 1486 and, therefore, not the *Witch-Bull’s* first concern: “It is clear that the deeds of witches can be committed without any heresy” (part III, introductory section, 194).

Instead the *Witch-Hammer* unequivocally declares: “It is clear that there is no comparison between such things and the deeds of witches There is no need to continue this argument in respect of the minor forms of divination, since it has been proved in respect of the major forms. ... Anyone who wishes may refer to the teachings of Nider,⁷ and he will find much as to when such things are lawful and when they are not. But the works of the witches are never lawful” (part I, section 16 on “A Comparison of the Works of Witches with other Baleful Superstitions”, 80 and 82 f.).

All seven of the new methods of witchcraft are blamed to hinder procreation: “First, by inclining the minds of men to inordinate passion; second, by obstructing the generative force; third, by removing the members accommodated to that act; fourth, by changing men into beasts by their magic

⁷ The reference is to Johannes Nider’s treatise *Formicarius* of 1435, the second book ever printed on witchcraft.

art; fifth, by destroying the generative force in women; sixth, by procuring abortion; seventh, by offering children to devils” (47). In modern terminology these seven offenses of witchcraft comprise: (1) fornication and adultery (as training grounds for sexual pleasure without remorse, *i.e.* offspring); (2) rendering men impotent; (3) castration and sterilization; (4) bestiality⁸ and homosexuality (as ways of sexual satisfaction without procreation); (5) contraception; (6) abortion; (7) infanticide (also when masked as child sacrifice [to the devil]).

The *Witch-Hammer* elaborates on this sevenfold witchcraft under the headline “*Witches who are Midwives in Various Ways Kill the Child Conceived in the Womb, and Procure an Abortion; or if they do not this Offer New-born Children to Devils*” (part I, section 11, 66, emphasis added). By outlining a pharmaceutical definition of witchcraft the mere administration of magic spells is downgraded. “*It is witchcraft, not only when anyone is unable to perform the carnal act ... but also when a woman is prevented from conceiving or is made to miscarry after she has conceived. ... Without the help of devils, a man [human being] can by natural means, such as herbs, savin for example, or other emmenagogues, procure that a woman cannot generate or conceive*” (66; emphases added).

Another influential bull, known as *Effraenatum* and issued by Pope Sixtus V in 1588, confirms the Catholic Church’s condemnation of contraception and abortion.⁹ Again, pharmaceutical expertise, and not sheer black magic, is

⁸ This explains why also men are persecuted for witchcraft. On the many witch-trials against men for bestiality in Basel between the 14th to 18th centuries see Guggenbühl 2002.

⁹ There exists no controversy between Catholics and Protestants with respect to this point. Martin Luther, *e.g.* was second to none in waging war against witch midwives. To him they were “shameless whores of the devil ... who torture the newborn in the cradle, bewitch the sexual organs *et cetera*” (quoted in Dieffenbach 1978 [1886], 294: “One should have no compassion on these witches; I myself would burn all of them” (quoted in Hammes 1977, 156).

persecuted. “The most severe punishments [should go to those] ... who procure poisons to extinguish and destroy the conceived fetus within the womb ... [and those] who by poisons, potions, and *maleficia* induce sterility in women, or impede by cursed medicines their conceiving or bearing” (quoted in Noonan 1986 [1963], 362).

By the late 16th century, the sevenfold witchcraft of birth control, first outlined in the *Witch-Hammer*, is already included in the secular laws of the Holy Roman Empire covering most of continental Europe. Whereas medieval laws against sexual offences apply death penalty to rape, adultery between members of different classes, and theft of children, the criminal laws of the Renaissance – such as the *Constitutio Criminalis Bambergensis* (1507) and the *Constitutio Criminalis Carolina* (1532) – add the sevenfold witchcraft of hindering procreation, especially contraception, homosexuality, abortion, and infanticide (see Hirschfeld 1930, 87).

IV Midwives: The Prime Target of the Witch Hunts

How is the *Witch-Hammer's* innovative content of eradicating birth control tied to the main target group, the “midwives = witches” or “witch midwives” (Sprenger and Kramer [Institoris] 1487, I, 157 and II, 135)?¹⁰ It has to be emphasized that the commentary, as well as the *Witch-Bull* itself (“persons of both sexes”, Innocent VIII, 1484, I, xlv; see above), is not – as frequently assumed – a misogynist treatise. “Both men and women are addicted to witchcraft” (Kramer [Institoris] and Sprenger 1487, 150). Because of birth control as the persecution's content, the *Witch-Hammer* “chiefly consider[s] women; and first, why this kind of perfidy is found more in so fragile a sex than in men. And our inquiry will first be general, as to the general conditions of women; secondly, particular, as to which sort of women are found to be given to superstition and witchcraft; and thirdly, *specifically with regard to midwives, who surpass all others in wickedness*” (part I, section 6 , 41; emphasis added).

Major sections of the *Witch-Hammer* specify the supposed “wickedness” of midwives. Sections 8 and 11 of part I are so unambiguously formulated already in their headlines that quite an effort is required not to recognize them: “Witches can hebetate the Powers of Generation or obstruct the Venereal Act” (section 8, 54) and “Witches who are Midwives in Various Ways Kill the Child Conceived in the Womb, and Procure an Abortion” (section 11, 66). Section 8 addresses the fifth method of witchcraft, contraception, where witches are so powerful, because already “a man [human being] can obstruct the generative powers by frigid herbs or anything else”: “Loose lovers who, to save their mistresses from shame, use contraceptives, such as potions, or herbs that

¹⁰ In Summer's edition of the *Witch-Hammer*, the formula “midwives = witches” in the Latin original is translated as “Witches who are Midwives”, while the term “witch midwives” corresponds exactly to the original; see Sprenger and Kramer [Institoris] 1487, 66 and 140.

contravene nature, without any help from devils. And such penitents are to be punished as homicides. But witches who do such things by witchcraft are by law punishable by the extreme penalty” (55 f.).¹¹ In the same manner section 11 elaborates on four of the methods of the sevenfold witchcraft : (i) obstructions “to perform the carnal act”, (ii) to prevent “from conceiving”, or “to miscarry” after conception, (iii) “to procure an abortion”, and (iv) to commit infanticide phrased as “devour the child or offer it to the devil.”

In sections 8 and 11 of part I, two points are important to note: (i) Despite its religious language – “without the help of devils” – the *Witch-Hammer* gives a clear account that the use of “natural means” for prevention and abortion, such as potions and herbs, can be performed by most human beings. Therefore, their use – and not just the witches as such – has to be persecuted. This indicates that a highly developed culture of birth control must have existed in the early Renaissance, the time of the start of the Great Witch Hunt. (ii) The fact that the witch midwives should be punished “by extreme penalty” for the employment of “natural means” reveals that they must have been the experts of birth control. Both points will be further dealt with in section V below.

The *Witch-Hammer’s* part II deals with the methods of the midwives in three more passages. Section I, § 5 informs in its headline on “How they [Witches] Impair the Power of Generation”. Section I, § 6 is titled: “How Witches Impede and Prevent the Power of Procreation”, and I, § 7 reads: “How ... they Deprive Man of his Virile Member.” Section I, § 13 adds “How Witch Midwives Commit most Horrid Crimes When they either Kill Children or Offer them to Devils in most Accursed Wise.” And section II, § 2 prescribes the remedies for “Those who are Bewitched by the Limitation of the Generative Power (114, 117, 118, 140, and 164). In contrast to the altogether eleven

¹¹ In the “*Malleus Renovatus*”, Bodin’s *Démonomanie*, the equating of contraception with murder is confirmed: “Persons, therefore, who obstruct conception or the birth of

sections on the new crime of witchcraft as birth control – four in part one, five in part II and one in part III – only three sections, all in part II, of the *Witch-Hammer* are exclusively devoted to the damages caused by weather and animal sorcery.¹²

In part III of the *Witch-Hammer*, which relates to the juridical proceedings against witches, the “Witch Midwives” (part of headline) are targeted as the most dangerous witches: “Here we must refer incidentally to witch midwives, who surpass all other witches in their crimes And the number of them is so great that, as has been found from their confessions, it is thought that there is scarcely any tiny hamlet in which at least one is not to be found” (section II, § 34, 268 f.).

Indeed, as recognized by eminent historians who, like Norman Cohn, Jean Delumeau, Richard Kieckhefer, and Thomas Forbes, are not blinded by the micro perspective of the witch trials’ files, the midwife becomes the prime target of the witch hunts. Cohn (1976 [1975], 342) notices that “it is striking how often the village midwife figures as the accused in a witchcraft trial.” Delumeau (1978, 77) finds that, in the times of the Great Witch Hunt, “without doubt, the midwife . . . of the village was the most endangered person”. Kieckhefer (1978, 54; and see 18) suggests that “many of the women prosecuted had curing as their occupation: they were beneficent magicians, practitioners of folk-medicine, or perhaps midwives”. And Forbes (1966, 112 f.) extensively confirms the view of the close relation between the midwife and the witch.

children must be considered just as much a murderer as the person who cuts another’s throat” (Bodin 1580, 113).

¹² (i) Section I: 14 on “How Witches Injure Cattle in Various Ways”, (ii) section I:15 on “How they [Witches] Raise and Stir up Hailstorms and Tempests, and Cause Lightening to Blast both Men and Beast”, and (iii) section II:7 on “Remedies prescribed against Hailstorms, and for Animals that are Bewitched” (Kramer [Institoris] and Sprenger 1487, 144, 147 and 188).

The theologian Katharina Ellinger, the economist Kurt Baschwitz and the anthropologist Inge Schöck adhere to this view too. “In most cases the witch hunters turned first to the midwife” (Ellinger 1974, 463). “In every witch hunt the local midwife was the person mainly to blame” (Baschwitz 1963, 141). “The main target groups accused for witchcraft were widows, unmarried women and midwives” (Schöck 1978, 63). Moreover, the scholar of law Manfred Hammes (1977, 62), in an analysis of the witch hunts in early 17th century Cologne, can verify the thesis of the midwife as the key target: “In a period of intensive persecution (1627-1630), nearly all the town’s midwives were extinguished. Every third of the executed women was a midwife, whereby their actual share may have been greater because in most of the cases the profession is not recorded in the files.”¹³

Why are the “witch midwives” blamed for surpassing all other women in their crimes? On this question, the authors of the *Witch-Hammer*, Kramer [Institoris] and Sprenger, state in no uncertain terms: “We must add that in all these matters [of sorcery and witchcraft] witch midwives cause yet greater injuries, as penitent witches have often told to us and to others: *No one does more harm to the Catholic Faith than midwives*” (part I, section 11, 66; emphasis added). However, they do not see the “Catholic Faith” endangered by heresy (see above), but by the damage caused by the midwives to Europe’s biggest landlord, the Catholic Church. As foremost experts of birth control these women are judged as a grave obstacle to repopulation for overcoming the shortfall of labor in the wake of the Little Ice Age and the Population Catastrophe.

¹³ Emily Oster has suggested to the authors to consider cross country variation in the share of the witches who were midwives showing that places with more population decline should have had a large share of midwives killed. However, for such a straightforward test no data sources other than those of Hammes are known to us. The few files of the trials preserved refer to *maleficium* only, thereby hiding that this accusation means performing birth control; see section V below.

V The Disappearance of Medieval Birth Control

Until the rise of the new academic discipline of the history of birth control, going back to Norman Himes (1936), it is believed that the Neo-Malthusians of early 19th century England were the first humans who had an idea of how to artificially control conception. The American medical doctor forcefully defies such a view. “Many people nowadays frown upon the physician who supports contraception as a ‘radical’, whereas the simple fact is that the awakening interest in contraception on the part of contemporary doctors is merely a return to the classical attitude. In antiquity anti-conceptual technique had a definite place in preventive medicine” (Himes 1936, 99).

What Himes has demonstrated seven decades ago for the Ancient World, the historian of ideas, John T. Noonan, has confirmed thirty years later for the Middle Ages. “In particular, the period between 400 and 1600 will be seen to be marked by a possession and use of contraceptive means which previous accounts have not suggested. / The existence of contraceptive methods in the world from which the Christians came is established: by the Old Testament, by the Talmud, by Aristotle, by Pliny, by the physicians, and by imperial law. Coitus interruptus, potions, pessaries, spermicides, genital salves, postcoital exercises, the sterile period – a very wide range of possible techniques was known” (Noonan 1986 [1965], 2 and 28).

The disciplines of historical demography as well as the historiography of the Great Witch Hunt have not taken notice of the ground-breaking research of Himes and Noonan. Until today, their leading proponents are convinced that there was no artificial birth control up to the late 18th century. All they can imagine is celibacy, coitus interruptus, infanticide, late marriages and restraint after wedding (Riddle 1997, 132 and 169).

While Noonan cannot yet explicitly prove that ancient and medieval oral contraceptive plants and abortifacient drugs really worked, the historian John

Riddle, a quarter of a century later, is able to demonstrate exactly that. “We have seen indications in all periods that folk experimentation led to the discovery of new drugs to contracept and to abort while some of the drugs, which were judged less effective or available and more dangerous, were dropped from use. / Because of the various modern medical and animal sciences, biochemistry, pharmacy, and anthropology, we have reason to believe our historical documents in the matter that pre-modern peoples could limit family size” (Riddle 1992, 163 and 165 f.).

What happened to the Middle Ages’ sophisticated culture of birth control in the Renaissance? It disappears to a bewildering degree. Noonan is well aware of this and can only admit his perplexity. “In the entire period 1480 to 1750, only a single prominent theologian breaks from convention to mention the contraceptive for men. / The married laity were a silent group. They did not write on birth control. Women, who might have had the most to say, were not heard from. ... This silence is striking in an age when literacy was no longer confined to clerics. ... The one group which might have had a professional interest in contraception was the doctors. They showed no concern. ... Even in the eighteenth century, the rationalists who were openly critical of many of the teachings of the Church did not attack the prohibition of contraception” (Noonan 1986 [1965], 349 and 346).

Riddle (1992, 16) reveals that medieval contraceptive “knowledge was primarily transmitted by a network of women” and wonders how “this trail of learning” could have been broken in early modern times: “The surprise about the Renaissance sources is that they knew so little about birth control compared to classical and medieval authorities” (256). Half a decade later, and drawing on our explanation (Heinsohn and Steiger 1989 [1985]; and Heinsohn and Steiger 1997), he concludes: “Midwifery in the sixteenth and seventeenth centuries was connected with witchcraft, not as tightly as some modern scholars have suggested, but more firmly than others say” (Riddle 1997, 138). Thereby, he

explicitly adopts our theory – an explanation which he calls “*The Broken Chain of Knowledge*” (167): “As they [Heinsohn and Steiger] say, the modern population rise is partly attributable to pro-natalist views and suppression of birth control measures. A trend that began in late antiquity to restrict abortion certainly was accelerated by the witch scares in pre-modern times, with the effect that birth control information became a subject to be dealt with cautiously, or not at all” (205; and see Dickens 2000).¹⁴

The onset of the Great Witch Hunt – we assume – does not only break a chain of knowledge but does so by wiping out its mostly female personnel. While Riddle can already draw on our research, Noonan can employ his expertise on *maleficium*, the magic for which midwives are punished, however without ever dealing with the witch hunt himself. “The key word is ‘medicine’ – in Greek *pharmakeia*, in Latin *veneficium*. In both languages the term means use of ‘magic’ or ‘drugs’. / Etymologically, *maleficium* means ‘evil-doing’. Often it is used to mean ‘magic’; and *malefici*, those who perform *maleficium* are viewed as sorcerers. ... In addition to its broad and vague meaning of magic, *maleficium* sometimes refers more specifically to an act causing an abortion or producing sterility. ... In short, *maleficium* has the ambiguity of *veneficium* in Classical Latin, and is sometimes specified to indicate abortion or contraception” (Noonan 1986 [1965], 25 and 155 f.).

Notwithstanding, that, at best, one third of the files of witch trials are preserved (Baeyer-Katte 1965, 222), the remaining ones cannot prove that only traditional sorcery is at stake. When the files are silent about the “natural means” of birth control but mention *maleficium*, as undisputedly is the case, the

¹⁴ In a first comment on an earlier version of this paper, Riddle (2004) has confirmed his approval of our thesis: “What you [Heinsohn and Steiger] have done is to place your thesis firmly within the context of scholarship and, in doing so, I am confident that you are correct and have proven your thesis that the population explosion of the 18th century is directly related to and, in a large degree, a consequence of restricted knowledge of birth control and witchcraft suppression.” For a more detailed comment see the appendix below.

historians of the Great Witch Hunt interpret it as time-honored sorcery or, at the best, as unsuccessfully employing irregular healing methods (Harvey 1990, 9; Irsigler 2002, 144). By doing so, they once again miss the new content of *Witch-Bull* and *Witch-Hammer*, the *Malleus Maleficarum*. By simply mistranslating *maleficium* they feel justified to attack everyone as unscholarly (for example, Irsigler 2002, 143 f.) who bases his translation of *maleficium* on the results of the best scholars of the history of birth control.

Riddle (1997, 89; emphasis added) forcefully confirms the difficulties of modern researchers on witchcraft to grapple with *maleficium* and also explains why they might have missed to detect its meaning as birth control. In medieval and early modern times, “both the confessional questions and the various law codes make clear that contraception and abortion were associated with black magic (*maleficia, veneficii*). ... Women were expected to administer the ‘drinks’ and other antifertility agents. They knew the *secrets* One reason the use of effective pre-modern birth control escaped detection is that, by and large, it was a woman’s secret.” A secret, one should add, the mere knowledge of which is persecuted during the Renaissance.

The rare historians of the Great Witch Hunt who take notice of the research on the history of contraception and the role of the midwives either think that “it is not necessary in this context [the witch hunts] to consider their [the midwives’] technical expertise” (Harley 1990, 2), or put into doubt the efficacy of medieval birth control medicine (Harley 1990, 19, and 2004, 2), or – on the contrary – are convinced that contraceptive knowledge was widespread and never suppressed, at best “a taboo” (Jütte 2003, 14).

Yet, there is an even stronger proof for the broken chain of knowledge than just the persecution of birth control. Gynecology itself comes under attack. “Up to the late 14th century midwives were entitled to practice without regulation. From this time onward [they] were downgraded from qualified and

independent female healers ... to mere assistants of the physician¹⁵ ... lacking any experience in obstetrics because through the Middle Ages no male was allowed to practice in gynecology” (Ketsch 1983, 262 f.). Thus, with midwifery goes most of the art of gynecology¹⁶ as well as knowledge and naturalness of human sexuality.

Most striking is the fate of the vaginal speculum – called *speculum magnum matricis* in Roman antiquity and *dioptré* in medieval France – which is to gynecology what fire is to cooking and the wheel to driving. It is mysteriously “abandoned” in the Renaissance (Eurekaweb 2004) and not reinvented before 1812 by the French surgeon Joseph C. A. Récamier (Heinsohn and Steiger 1987). Human sexuality takes another 150 years before it can occupy its natural position in medical research. As late as the 1960s, an American medical doctor specialized in sex hormones recalls that “human sexuality did not appear on my medical school curriculum, nor did the majority of medical schools across the country offer any such courses. ... I was struck by the neglect of this important arena of the human condition” (Crenshaw 1996, xvi).

¹⁵ Already in part III, section II, § 34 of the *Witch-Hammer*, it is recommended “that the magistrates ... should allow no midwife to practice without having been first sworn as a good Catholic” (Kramer [Institoris] and Sprenger 1487, 269).

¹⁶ Therefore, the thesis of Barbara Ehrenreich and Deirdre English (1973) that male medical doctors deliberately tried to get rid of the midwives to gain their clients misses the point: the doctors were as ignorant of gynecology as of birth control medicines.

The decline of the medieval art of gynecology is paralleled by the rise of the birth clinic in the 18th century replacing the traditional births at home with the help of the midwife. It is guided by the new profession of male obstetricians, promoted by the authorities but disliked by women. In the beginnings, only poor, unmarried women seek the clinic. The main instrument for the births in the new institution becomes the obstetric forceps, causing a higher rate in maternity mortality than at home births performed according to the art of midwifery; see Schlumbohm and Wiesemann 2004.

VI The Dramatic Rise of Birth Rates and Population Growth

Historical demographers do not know why Europe's population decline due to the Little Ice Age and the Population Catastrophe of the Great Plague is reversed in the late 15th century. "*The causes of [this rise in] the development of population are not yet fully understood*" (Kaufhold 1984, 53). Yet, their findings are quite precise on its timing which provides a perfect match with the onset of the Great Witch Hunt and the disappearance of birth control, two phenomena, however, they are not occupied with. "The half century between 1475 and 1525 remains very much a no-man's-land. ... Nevertheless ... schools of historians have tended to agree that the origins of the demographic explosion of the sixteenth and early seventeenth centuries lay in the last quarter of the century, more especially in the decade 1475 to 1485. ... At this time, or somewhat earlier, there are the first signs that the long decline in numbers was at last slowing and perhaps even being reversed" (Hatcher 1977, 63).

The decline during the 14th century from 73-77 to 45 million is indeed decisively reversed in the late 15th century, with a rise from 54 million in 1450 to 78 million in 1500, the level of 1300 (Irsigler 1984, 50). Between 1441 and 1465, one hundred English fathers are survived by only 110 sons, but already by 202 sons between 1491 and 1505 (Hatcher 1977, 27).

Until 1625, Europe's population rises to 105 million and, after a stagnation until 1650, up to 120 million in 1700 (Clough and Rapp, 52; and see McEvedy and Jones 1978, 18). Though the 16th and 17th centuries experience a remarkable rise in population, we hesitate to call it a "demographic explosion" (Hatcher) of the population. However, already in this period an unquestionable explosion of the birth rates does occur, with a number of children per woman not seen before. Whereas in tribal systems, the Ancient World and the Middle Ages usually 2 to 3 children were raised safeguarding biological reproduction, the average married woman in Western Europe nourishes "between 5 and 6.5 children" between the early 16th and the late 19th century (Anderson 1980, 19).

This unprecedented increase of surviving children per mother does not immediately translate itself into an equally steep rise in population because of the heavy losses inflicted on Europe by the Renaissance wars. For example, France, with 20% of Europe's population in 1550, falls from 16 to 10,5 million in 1600 during its eight Huguenot wars. In the Thirty Years War (1618-1648), the German territories lose 40% of their agricultural population and 33% of urban citizens (Irsigler 1984, 50). Despite this enormous bloodshed, the no less enormous fecundity catapults France to 18 million already in 1650. Germany recovers from a minimum of 10 million in 1650 to 15 million in 1700 (McEvedy and Jones 1978, 57; Kaufhold 1984, 53).

The six climate induced great famines of 1490-1493, 1516/17, 1527-1534, 1573-1576, and 1586-1589, with their high death toll, can hardly dent Europe's population increase from 78 in 1500 to 102 million in 1600 (Irsigler 1984, 50). The near-polar winter of 1709, for example, kills close to 3 million French citizens, thus reducing France's population from 21 to 18 million. Yet, at the onset of the French Revolution, in 1789, the country stands ready with 26 million inhabitants and can send 1.7 million soldiers to death up to the end of Napoleon's attempt at world domination. And yet, in 1815, France's population amounts to 29 million (Bouthoul 1972 [1970], 179 f.)

The actual number of surviving children would even have been higher if the Europeans had not managed to develop what is called the European Marriage Pattern. Because artificial birth control is placed beyond their reach, they resort to the postponement of marriage to reduce their sexually active lifetime. Another measure to avoid offspring in marriage is celibacy. Yet, the price is lifelong abstinence. After all, up to the mid 20th century, the only legal carnal act is intercourse in marriage with the intent of procreation. The authorities are not keen on a high number of children as such but want to secure provision for the children they force into existence. Therefore, the bastard, still held in esteem during the Middle Ages, is in modern times cursed as an out of

wedlock child. The efficiency of this control of sexual activity is illustrated by the strong decline of out of wedlock births which, in the 18th century, on average are around 2.5% only (Heinsohn and Steiger 1989 [1985], 168 f.).

The effect of postponing conjugal procreation serves as the most effective method to evade the severe punishment of artificial birth control. In 14th century Florence, the average age at marriage is 18. In late 17th century Colyton (England) it reaches 30 (Cipolla 1981, 154). While, in 18th century Western Europe, women married at the age of 20 have slightly more than ten children, those married between 25 and 29 years go down to an average of 6.2 (Heinsohn and Steiger 1989 [1985], 167).

A significant rise of infant mortality in the first year of life since the Renaissance serves as another factor to limit otherwise much more numerous offspring. It reaches between 30% and 40% in the last third of the 17th century in so-called “unhealthy” areas in France (Mols S.J. 1974 [1972], 70) and an average 30% in 17th century Italian Fiesole (Cipolla 1981, 306-307). In late 18th century Sweden, infant mortality reaches nearly 20% (308) and peaks with 50% in mid 19th century Stockholm (Nordberg 1984, 22). This loss of life is partly due to the deteriorating health of worn out mothers but also brought about by hidden infanticide through abandoning newborns to foundling homes or out-of-town ‘wet nurses’ as well as intentionally substituting cow’s milk for mother’s milk (264-269). This substitution already at an age of three weeks triggers, for example in the Swedish parish of Nedertorneå during the 18th and early 19th centuries, “the so-called *neonatal* mortality” supposedly caused by “mothers without love”, as they are called at that time, meaning that the survival rate in the first month of a newborn’s life was up to four times lower than during the rest of its first year (Brännström 1984, 101 and 103).

The prosperous living conditions of Europe’s royalty may illustrate the real potential of uncontrolled procreation. When it comes to birth control, the monarchs are as ignorant as their subjects. Yet their lifestyle allows, for

example, the mother of Prussia's Frederick the Great (1712-1786) to raise 13 children. His great adversary, Austria's Empress Maria-Theresa (1717-1780), gives birth to 16. And Victoria (1819-1901), Queen of England and Empress of India, runs through nine deliveries in a two-year rhythm.

The extremely high birth rate of post-medieval Europe can translate itself much quicker into an uncontested population explosion after the 17th century, because Europe's wars manage with much lower death tolls of the civil population. From 125 million in 1700 the population grows to 187 in 1800. This development not only allows Europe to be repopulated again, the steep rise also leads to a surplus of sons allowing the old continent to conquer and colonize the new world (Heinsohn, Knieper and Steiger 1986 [1979], 73 f.; Heinsohn and Steiger 1989 [1985], 258 f.; and see more detailed Heinsohn 2003). At the dawn of World War I out of 1000 humans 275 live in Europe, against only 90 in 2004 (Heinsohn 2003; and see 2004, 30). Unlike the high birth rates in the wake of the suppression of birth control after the Renaissance wars, the tremendous loss of civil life during the two world wars does not lead to a violent repopulation policy.¹⁷ On the contrary, the fight against birth control abates in the 1960s, with free access to contraceptives and free abortion, with the exception of Portugal, everywhere. Eventually, Europeans learn that to establish a prosperous economy a huge army of labor is not the first requirement.

¹⁷ However, in the 1930s and during World War II everywhere in Europe a repopulation policy occurs and, especially in fascist countries, even in violent form. "All the laws written before 1940 ... intended to induce the unemployed and the poor ... to earn money with the help of ... children allowances. In Germany, single women were asked imperiously 'to present the Führer with a child.' The laws were supplemented by severe measures, which burdened unmarried people with heavy taxes and punished those unhappy women cruelly who had undergone an abortion. In France, the government of Vichy boasted about having guillotined a midwife [*sic*]. Everywhere, laws supported ignorance in sexual matters" (Bouthoul 1972 [1970], 155); see more detailed Heinsohn, Knieper and Steiger 1986 [1979], 201-208.

VII The Great Witch Hunt in the War Against Birth Control

Our thesis that the Great Witch Hunt targets the midwives because they are the foremost experts of birth control does not mean that the witch trials were the only means to suppress contraceptive and abortive knowledge. Therefore, we see no mechanical correlation between the number of witch trials and the development of population. In other words, authorities did not intentionally react to each population decline with a rise of trials.

There are countries, like Italy and Spain, with a relatively low frequency of witch trials compared to France and the German territories, where they are relatively high. Yet, the Mediterranean countries are no less determined to suppress birth control by all possible means. After all, secular laws threaten birth control with severe punishment without calling every perpetrator a witch.

Where the persecutors burn or strangle women as witches they do not necessarily have to do this in every tiny hamlet. Confessions in major trials are “frequently used as horrifying propaganda by printing them on leaflets to reach people elsewhere” (Baeyer-Katte 1965, 225). Nearly a quarter millennium of intimidation conveys to every girl and woman in Europe the mortal danger of employing contraceptive methods and asking for an abortion or even for sexual education. Even the most courageous young women are afraid of obtaining, or even talking about contraceptives and abortion. As a persecuted *maleficium*, birth control becomes the great taboo of the Occident. Therefore, and as recorded by Noonan and Riddle, knowledge of birth control disappears everywhere in Europe and, as we conclude, the way for its Population Explosion is paved.

Appendix

The Great Witch-Hunt and the Suppression of Birth Control: Heinsohn and Steiger's Theory from the Perspective of an Historian

John M. Riddle

During the first 2,000 years of our Common Era, there have been two periods of sustained population increases on the European continent, the first from roughly 1000 to 1320 and the other beginning about the late 17th century and sustained until the 20th century. In between there were either declines or intervals of relative stability. Historians explain the first increase during the medieval period as a combination of numerous factors: ending of the Muslim, Viking, and Magyar invasions; dramatic technological improvements especially in agriculture (e.g., deep plough, horse collar and shoe, rational application of three-field system, animal breeding); improved global climate.

Inexplicably, *before* the devastation of the Black Death (1347-1349) and interval revisits, population began to decline as the feudal system was stressed with Mongol invasions and climatic worsened conditions. After all, the economic impact of the plagues only aggravated the situation, although dramatically. Businessmen in the guilds of towns sought an explanation as to why towns were not growing in population even after the recovery from the

plagues. They had noted that prosperity in the markets were proportional to population size. The Mercantilist theory of the early nation states simply extrapolated from town policy to place national level. Historians were baffled by the reasons why people were not reproducing at rates that could be anticipated and, by the businessmen, desired.

Some few economic policy makers realized that a problem was that women possessed the means to control their pregnancies. The earliest government regulation of illicit substance use was enacted in towns when lawmakers outlawed the growing of juniper, a frequently employed contraceptive. Then as now, law was an ineffective means of regulation especially with easily grown and concealed plants, and, also, there were effective contraceptive and abortifacient plants other than juniper some of which were not known. Laws in the 19th century sought to outlaw these same substances but the lawmakers could not produce a complete list. One state law merely said any drug was illegal that was “used exclusively by women”.

Professors Otto Steiger and Gunnar Heinsohn, social scientists at the University of Bremen, one an economist, the other a sociologist, were the first to see the response by the policy directors in Renaissance Europe, the time of the Great Witch-Hunt – political, university, and ecclesiastical leaders – to the caution of low birth rates. Leaders blamed the situation on “women’s secrets”; their means of suppression and eradication of this female knowledge was the suppression of witchcraft. Why were women the primary target? Why, among the women, were midwives the chief focus for eradication? Heinsohn and Steiger postulated and produced evidence, persuasive to me, that there was a correlation between witchcraft suppression and the dramatic rise in birth rates starting in the late 15th century and resulting in the population increase in the late 17th century, with the population explosion in the late 18th century. To know the means to limit procreation and, thereby, the nation’s population was an indication of being in league with the Devil.

Why have historians missed this evidence? I suspect that there are two reasons: if the historian cannot find an explanation in the primary sources – the records of the archives, literature, and manuscripts – they have no basis for forming a hypothesis; the motivations for the suppression of witchcraft were searched in the victims' confessions, with hypotheses based on analysis from psychohistory, the theory of hysteria, and theology. Therefore, historians overlooked an important fact: they failed to see that increases in birth rates followed witch-hunts. Women had long possessed the means to regulate family size, and even though her husband, sleeping nightly with his wife, was frequently unaware of what she did to hinder pregnancy. One of the great mysteries of modern historiographical problems is given explanation by these two German investigators. We should treat their evidence for what it is: a theory that explains the data.

References

- Anderson, Michael.** 1980. *Approaches to the History of the Western Family 1500-1914*. London: Macmillan.
- Baeyer-Katte, Wanda von.** 1965. "Die historischen Hexenprozesse: Der verbürokratisierte Massenwahn", in *Massenwahn in Geschichte und Gegenwart: Ein Tagungsbericht*. Wilhelm Bitter, ed. Stuttgart: Klett, pp. 220-231.
- Baschwitz, Kurt.** 1963. *Hexen und Hexenprozesse: Die Geschichte eines Massenwahns und seiner Bekämpfung*. München: Rütten & Loening.
- Ben-Yehuda, Nachman.** 1981. "Problems Inherent in Socio-Historical Approaches to the European Witch Craze." *Journal for the Scientific Study of Religion*. 20, pp. 326-338.
- Bodin, Jean.** 1580. *De la démonomanie des sorciers*. Paris: J. de Puys. Reprint Hildesheim: G. Olms, 1988.
- Bouthoul, Gaston.** 1972 [1970]. *Kindermord aus Staatsraison: Der Krieg als bevölkerungspolitischer Ausgleich*. Stuttgart: Deutsche Verlags-Anstalt. Translation from the French original, *L'infanticide différé*. Paris: Hachette.
- Brännström, Anders.** 1984. "De kärlekslösa mödrarna": *Spädbarnsdödligheten i Sverige under 1800-talet med särskild hänsyn till Nedertorneå* ("The mothers without love": Mortality of newborn infants in Sweden during the 19th century, with special emphasis on Nedertorneå). Umeå Studies in the Humanities. 62. Stockholm: Almqvist & Wiksell International.
- Brenner, Robert.** 1978. "Dobb on the Transition from Feudalism to Capitalism." *Cambridge Journal of Economics*. 2:2, pp. 121-140.
- Cipolla, Carlo M.** 1981 [1976]. *Before the Industrial Revolution: European Society and Economy, 1000 – 1700*. London: Methuen.
- Clough Shepard B. and Richard T. Rapp.** 1975. *European Economic History: The Economic Development of Western Civilization*. Third edition. New York: McGraw-Hill.
- Cohn, Norman.** 1970 [1957]. *The Pursuit of the Millennium: Revolutionary Millenarians and Mystical Anarchists of the Middle Ages*. London: Paladin Books.
- Cohn, Norman.** 1976 [1975]. *Europe's Inner Demons: An Enquiry Inspired by the Great Witch Hunts*. London: Paladin Books.
- Crenshaw, Theresa L.** 1996. *The Alchemy of Love and Lust: How Our Sex Hormones Influence Our Relationships*. New York: Putnam.
- Dieffenbach, Johann.** 1886. *Der Hexenwahn vor und nach der Glaubensspaltung in Deutschland*. Mainz: F. Kirchheim.
- Delumeau, Jean.** 1978. *La peur en Occident (xiv^e-xviii^e siècles): Une cité assiégée*. Paris: Fayard.
- Dickens, Emma.** 2000. *Immaculate Contraception: The Extraordinary Story of Birth Control – from the First Fumblings to the Present Day*. London: Robson Books.
- Ehrenreich, Barbara and Deirdre English.** 1973. *Witches, Midwives and Nurses: A History of Women Healers*. New York: Feminist Press.
- Ellinger, Katharina.** 1980 [1974]. "Die Hexen", in *Teufelsglaube*. Herbert Haag, with the assistance of Katharina Ellinger, ed. Tübingen: Katzmann, pp. 440-476.
- Eurekaweb.** 2004. "Spéculum (Antiquité)". <http://eurekaweb.free.fr/mh1-speculum.htm>.
- Forbes, Thomas R.** 1966. *The Midwife and the Witch*. New Haven, Conn.: Yale University Press.

- Guggenbühl, Dietegen.** 2002. *Mit Tieren und Teufeln: Sodomiten und Hexen unter Basler Jurisdiktion in Stadt und Land 1399 bis 1799*. Quellen und Forschungen zur Geschichte und Landeskunde des Kantons Basel-Landschaft. Vol. 79. Liestal: Verlag des Kantons Basel-Landschaft.
- Hammes, Manfred.** 1977. *Hexenwahn und Hexenprozesse*, Frankfurt am Main: S. Fischer.
- Harley, David.** 1990. "Historians as Demonologists: the Myth of the Midwife-witch". *Social History of Medicine*. 3, pp. 1-26.
- Harley, David.** 2004. "Witches, Midwives, and Bodin's Rationality: An Examination of the Heinsohn-Steiger Thesis." www.nd.edu/~dharley/witchcraft/texts/Bodin-midwives.htm, 9 pp.
- Hatcher, John.** 1977. *Plague, Population and the English Economy 1348-1530*, London: Macmillan.
- Heinsohn, Gunnar.** 2003. *Söhne und Weltmacht: Terror im Aufstieg und Fall der Nationen*. Zürich: Orrell Füssli.
- Heinsohn, Gunnar.** 2004. "Machtfaktor Söhne: Die weltpolitischen Konflikte in der Zukunft werden durch die demographische Entwicklung in der Dritten Welt bestimmt." *Financial Times Deutschland*. 11 June, p. 30.
- Heinsohn, Gunnar, Rolf Knieper and Otto Steiger.** 1986 [1979], *Menschenproduktion: Allgemeine Bevölkerungstheorie der Neuzeit*. Second edition Frankfurt am Main: Suhrkamp.
- Heinsohn, Gunnar and Otto Steiger.** 1979a. "Jean Bodin, le 'Génie universel des Temps Modernes' ou: Le vrai maître penseur – Neuf thèses démographiques pour le symposium 'Sciences humaines et histoire.'" *Diskussionsbeiträge zur Politischen Ökonomie* (Universität Bremen: Fachbereich Ökonomik), 19 (September), pp. 14-24.
- Heinsohn, Gunnar and Otto Steiger.** 1979b. "The Economic Theory of Fertility: An Alternative Approach for an Economic Determination of Procreation". *Metroeconomica*. 21:3, pp. 271-298.
- Heinsohn, Gunnar and Otto Steiger.** 1980. "The Large-Scale Murder for the Consecration of Life", in *A Systematic Analysis of Recent Population Change*. George S. Siampos, ed. Athens: National Statistical Service of Greece, pp. 314-326.
- Heinsohn, Gunnar and Otto Steiger.** 1982. "The Elimination of Medieval Birth Control and Witch Trials of Modern Times." *International Journal of Women's Studies*. 5: 3, pp. 193-214.
- Heinsohn, Gunnar and Otto Steiger.** 1983. "The Rationale Underlying Malthus's Theory of Population", in *Malthus Past and Present*. Jacques Dupâquier, Antoinette Fauve-Chamoux and Eugene Grebenik, eds. London: Academic Press, pp. 223-232.
- Heinsohn, Gunnar and Otto Steiger.** 1987. "Warum mußte das Speculum zweimal erfunden werden? – Eine Replik." *Kritische Justiz*. 20: 2, pp. 200-207.
- Heinsohn, Gunnar and Otto Steiger.** 1989 [1985]. *Die Vernichtung der weisen Frauen: Beiträge zur Theorie und Geschichte von Bevölkerung und Kindheit*. New and enlarged edition, Munich: Heyne. Further enlarged republication, Erfstadt-Lechenich: März Buch im Area Verlag, 2005, forthcoming.
- Heinsohn, Gunnar and Otto Steiger.** 1997. "Inflation and Witchcraft or the Birth of Political Economy: The Case of Jean Bodin Reconsidered". *IKSF Discussion Paper*, 8. Universität Bremen: Institut für Konjunktur- und Strukturforchung (IKSF).
- Heinsohn, Gunnar and Otto Steiger.** 1999. "Birth Control: The Political-Economic Rationale Behind Jean Bodin's *Démonomanie*." *History of Political Economy*, 31: 3, pp. 423-448.
- Heinsohn, Gunnar and Otto Steiger.** 2004. "Inflation et sorcellerie: un nouvel examen du cas de Jean Bodin," in *L'œuvre de Jean Bodin: Actes du colloque tenu à Lyon à l'occasion du quatrième centenaire de sa mort (11-13 janvier 1996)*. Gabriel-André

- Pérouse, Nicole Dockès-Lallement and Jean-Michel Servet, eds. *Colloques, congrès et conférences sur la Renaissance: Collection dirigée par Claude Blum*. Vol. 41. Paris: Éditions Champion, pp. 459-484.
- Himes, Norman E.** 1936. *Medical History of Contraception*. Baltimore: Williams and Wilkins. Reprint New York: Gamut Press, 1963
- Hirschfeld, Magnus.** 1930. *Geschlecht und Verbrechen*. J. R. Spinner, ed. Vienna: Schneider & Co.
- Innocent VIII.** 1484. "The Bull of Innocent VIII," in *The Malleus Maleficarum*. Heinrich Kramer [Institoris] and Jacob Sprenger. Montague Summers, ed. New York: Dover, pp. xliii-xlv.
- Irsigler, Franz.** 1984. "Bevölkerung, Gesellschaft – im Spätmittelalter und der Frühen Neuzeit", in *Wirtschaftsploetz: Die Wirtschaftsgeschichte zum Nachschlagen*. Hugo Ott and Hermann Schäfer, eds. Freiburg and Würzburg: Ploetz, pp. 49-51.
- Irsigler, Franz.** 2002. "Hebammen, Heilerinnen und Hexen", in *Hexenwahn: Ängste der Neuzeit. Begleitband zur gleichnamigen Ausstellung des Deutschen Historischen Museums (DHM) 3. Mai – 6. August*. Rosemarie Beier–de Haan, Rita Voltmer and Franz Irsigler, eds. Berlin: DHM, pp. 142-153.
- Jütte, Robert.** 2003. *Lust ohne Last: Geschichte der Empfängnisverhütung von der Antike bis zur Gegenwart*. München: C. H. Beck.
- Kaufhold, Karl Heinrich.** 1984, "Bevölkerung, Gesellschaft – im Zeitalter des Merkantilismus", in *Wirtschaftsploetz: Die Wirtschaftsgeschichte zum Nachschlagen*. Hugo Ott and Hermann Schäfer, eds. Freiburg and Würzburg: Ploetz, pp. 52-54.
- Ketsch, Peter.** 1983. *Frauen im Mittelalter – Band 1: Frauenarbeit im Mittelalter – Quellen und Materialien*. Anette Kuhn, ed. Düsseldorf: Schwann.
- Kieckhefer, Richard.** 1978. *European Witch Trials: Their Foundations in Popular and Learned Culture, 1300-1500*. London: Routledge & Kegan Paul.
- Klaits, Joseph.** 1985. *Servants of Satan: The Age of the Witch Hunts*. Bloomington: Indiana University Press.
- Kramer [Institoris], Heinrich and James [Jakob] Sprenger.** 1487. *The Malleus Maleficarum*. Montague Summers, ed. London: John Rodker, 1928. Reprint New York: Dover, 1971.
- McEverdy, Colin and Richard Jones.** 1978. *Atlas of World Population*. London: Allen Lane.
- Mols S.J., Roger.** 1974 [1972]. "Population in Europe 1500-1700", in *The Fontana Economic History of Europe – Volume 2: The Sixteenth and Seventeenth Centuries*. Carlo M. Cipolla, ed. Glasgow: Collins Fontana, pp. 15-82.
- Noonan Jr., John T.** 1989 [1965]. *Contraception: A History of Its Treatments by the Catholic Theologians and Canonists*. Enlarged edition Cambridge/Mass.: Belknap Press of Harvard University Press.
- Nordberg, Michael.** 1984. *Den dynamiska medeltiden (The dynamics of the Middle Ages)*. Stockholm: Tiden.
- Oster, Emily.** 2004. "Witchcraft, Weather and Economic Growth in Renaissance Europe." *The Journal of Economic Perspectives*. 18: 1, pp. 215-228.
- Ostermeyer, Hans and Rosemarie Beier–de Haan.** 2004. "Vorwort Deutsches Historisches Museum, Berlin," in *Hexenwahn: Ängste der Neuzeit – Begleitband zur gleichnamigen Ausstellung des Deutschen Historischen Museums (DHM) Berlin, Kronprinzenpalais 3. Mai bis 6. August 2002*. Rosemarie Beier–de Haan, Rita Voltmer and Franz Irsigler, eds. Berlin: DHM, pp. 9-15.
- Riddle, John M.** 1992. *Contraception and Abortion from the Ancient World to the Renaissance*. Cambridge, Mass.: Harvard University Press.

- Riddle, John M.** 1997. *Eve's Herbs: A History of Contraception and Abortion in the West*. Cambridge, Mass.: Harvard University Press.
- Riddle, John M.** 2004. "Comment on Gunnar Heinsohn and Otto Steiger, 'Witchcraft, Population Catastrophe and Economic Crisis in Renaissance Europe: An Alternative Macroeconomic Explanation' (September 2004)", in John M. Riddle, *E-mail to Otto Steiger*, 1 October.
- Robbins, Rossel Hope.** 1959. *The Encyclopedia of Witchcraft and Demonology*. New York: Crown Publishers.
- Russel, J. C.** 1972 [1969]. "Population in Europe 500-1500," in *Fontana Economic History of Europe – Volume 1: The Middle Ages*. Carlo M. Cipolla, ed. Glasgow: Collins Fontana, pp. 25-70.
- Schlumbohm, Jürgen and Claudia Wiesemann.** 2004. *Die Entstehung der Geburtsklinik in Deutschland 1751-1850: Göttingen, Kassel, Braunschweig*. Göttingen: Wallstein.
- Schöck, Inge.** 1978. *Hexenglaube in der Gegenwart: Empirische Untersuchungen in Südwestdeutschland*. Untersuchungen des Ludwig-Uhland-Instituts der Universität Tübingen. Vol. 45. Tübingen: Tübinger Vereinigung für Volkskunde.
- Sprenger, Jakob [James].** 1487. "Apologia," in *Malleus Maleficarum: Der Hexenhammer*. Jacob Sprenger and Heinrich Institoris [Kramer]. J.W.R. Schmidt, ed. Berlin: H. Barsdorf, 1906. Reprint Darmstadt: Wissenschaftliche Buchgesellschaft, 1974, part I, pp. xliv-xlvi.
- Sprenger, Jakob [James] and Heinrich Institoris [Kramer].** 1487. *Malleus Maleficarum: Der Hexenhammer*. J.W. R. Schmidt, ed. Berlin: H. Barsdorf, 1906. Reprint Darmstadt: Wissenschaftliche Buchgesellschaft, 1974, vols I-III.
- Stangeland, Charles E.** 1904. *Pre-Malthusian Doctrines of Population: A Study in the History of Economic Thought*. Reprint New York: Augustus M. Kelley 1966.

Bisher erschienen in der Reihe *IKSF Discussion Papers*:

- No. 1 **Peter Kalmbach** und **Uwe Staroske**: Die wirtschaftliche Entwicklung in der Bundesrepublik Deutschland im Lichte unterschiedlicher "Realprodukte"
Bremen März 1996 € 5,--
- No. 2 **Thomas von der Vring**: Zyklus und Trend – Nachfrage und Investition – Kapazitätsauslastung und Produktionspotential – Beschäftigung und Arbeitsplätze
Bremen April 1996 € 5,--
- No. 3 **Gunnar Heinsohn** and **Otto Steiger**: Liquidity Premium: New Version
Bremen Mai 1996 € 2,50
- No. 4 **Peter Kalmbach**: Transfer-driven Transition – or: What Prevented East Germany's Transformation Becoming a Success Story?
Bremen August 1996 € 2,50
- No. 5 **Gunnar Heinsohn** and **Otto Steiger**: Liquidity Premium, Property and Collateral: Three Neglected Concepts in the Theory of a Monetary Economy.
Bremen September 1996 € 5,--
- No. 6 **Uwe Staroske**: Die Drei-Sektoren-Hypothese: Was die Begründer wirklich meinten
Bremen Oktober 1996 € 5,--
- No. 7 **Detlev Ehrig**: Endogene Wirtschaftskraft und wirtschaftliches Wachstum: Theoretische Annäherungen und wirtschaftspolitische Folgerungen
Bremen November 1996 € 5,--
- No. 8 **Gunnar Heinsohn** and **Otto Steiger**: Inflation and Witchcraft or The Birth of Political Economy: The Case of Jean Bodin Reconsidered
Bremen Januar 1997 € 7,50
- No. 9 **Reiner Franke**: Behavioural Heterogeneity and Genetic Algorithm Learning in the Cobweb Model
Bremen Juni 1997 € 5,--
- No. 10 **Gunnar Heinsohn** and **Otto Steiger**: The Paradigm of Property, Interest and Money and Its Application to European Economic Problems: Mass Unemployment, Monetary Union and Transformation
Bremen Juli 1997 € 5,--
- No. 11 **Gunnar Heinsohn** und **Otto Steiger**: Kontroversen der Geldentstehung: Streit um die Anfänge des Geldes
Bremen August 1997 € 7,50
- No. 12 **Thomas von der Vring**: Stabilität und Beschäftigung – Maastricht ist nicht das Problem
Bremen Juli 1997 € 5,--

- No. 13 **Petra Kirchoff** und **Wolfram Elsner**: Logistik-Sektor und Region: Definition, Erfassung und Entwicklung des Logistik-Sektors am Beispiel des Logistik-Standortes Bremen
Bremen September 1997 € 5,--
- No. 14 **Uwe Staroske**: Der gewogene Außenwert der DM: Konzeption und Alternativen.
Bremen Dezember 1997 € 5,--
- No. 15 **Peter Kalmbach**: Wachstumsschwäche durch Dienstleistungen vs. Dienstleistungsbereich als Wachstumsmotor.
Bremen Januar 1998 € 5,--
- No. 16 **Detlev Ehrig** und **Torsten Kuhn**: Humankapital, Lernkuven, Skaleneffekte: Verhaltenstheoretische Fundierungen und empirische Illustrationen ökonomischer Dynamik.
Bremen Februar 1998 € 5,--
- No. 17 **Thomas von der Vring**: Lohnzurückhaltung als Mittel der Beschäftigungsvermehrung – kritische Anmerkungen zur Empirie
Bremen Juni 1998 € 5,--
- No. 18 **Ralf K. Himmelreicher**: Westdeutsche Haushalte und ihr Vermögen: Eine Längsschnitt-Kohortenanalyse auf Datenbasis des SOEP (1985-1996)
Bremen Januar 1999 € 5,--
- No. 19 **Hans-Joachim Stadermann** und **Otto Steiger**: John Maynard Keynes und die Theorie der Geldwirtschaft
Bremen April 1999 € 5,--
- No. 20 **Reiner Franke**: Technological Change, Income Distribution, and Endogenous Long-Run Growth.
Bremen Januar 2000 € 5,--
- No. 21 **Wolfgang Theil**: Bürgerliches Recht, Geld und zinsinduzierte Geldknappheit: Ein Beitrag zur Heinsohn/Steiger-Riese-Kontroverse
Bremen März 2000 € 5,--
- No. 22 **Gunnar Heinsohn** und **Otto Steiger**: Geldnote, Anleihe und Aktie: Gemeinsamkeiten und Unterschiede dreier Wertpapiere.
Bremen September 2000 € 5,--
- No. 23 **Thomas von der Vring**: Nicht-produktive Verwendung der Geldmenge in Deutschland.
Bremen September 2000 € 5,--
- No. 24 **Gunnar Heinsohn** and **Otto Steiger**: Alternative Theories of the Rate of Interest: A New Paradigm
Bremen März 2001 € 5,--
- No. 25 **Thomas von der Vring**: Die Phillipskurve: Zur Geschichte einer empirischen Beobachtung
Bremen März 2001 € 5,--

- No. 26 **Rainer Grünwald**: Fibel für Einsteiger in die Eigentumstheorie der Wirtschaft
Bremen Mai 2001 € 5,--
- No. 27 **Peter Kalmbach**: Neue Ökonomie: Ökonomisch Neues oder ‘Same Procedure as
Every Year’
Bremen Mai 2001 € 5,--
- No. 28 **Jan Beaufort**: Abschied vom Tausch? Die Theorie der Eigentumsgesellschaft
von Gunnar Heinsohn und Otto Steiger
Bremen August 2001 € 5,--
- No. 29 [a] **Reiner Franke** and **Peter Kalmbach**: Structural Change in the Manufacturing
Sector and Its Impact on Business-Related Services: An Input-Output Study for
Germany
Bremen März 2004, nur als PDF-Dokument vorhanden:
www.iksf.uni-bremen.de
- No. 29 [b] **Gunnar Heinsohn** and **Otto Steiger**: Witchcraft, Population Catastrophe
and Economic Crisis in Renaissance Europe: An Alternative Macroeconomic
Explanation
Bremen Oktober 2004 € 5,--
- No. 30 **Otto Steiger**: Eigentum und Recht und Freiheit: Meine Abschiedsvorlesung
Bremen November 2004 € 7,50
- No. 31 **Gunnar Heinsohn** and **Otto Steiger**: Witchcraft, Population Catastrophe
and Economic Crisis in Renaissance Europe: An Alternative Macroeconomic
Explanation – With an Appendix by **John M. Riddle** (2nd enlarged version)
Bremen Dezember 2004 nur als PDF-Dokument vorhanden:
www.iksf.uni-bremen.de