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The Population Transition and Seasonal Fluctuations in Infant Mortality in Finland, Estonia and Russia[1]

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Abstract

In explaining differences in infant mortality and its development in Finland, Russia and Estonia in regard to region, religious group and month of the year in the period 1750 – 1900, one can note the significance of breastfeeding. Wherever breastfeeding was common, infant mortality was low and there was no peak in infant mortality during the summer months. The basic reason for this was that breastfeeding was much more hygienic than other forms of feeding and, in addition, breast milk was a versatile source of nutrition. Economic reasons were of only secondary importance compared to these forms of feeding.

Keywords: population transition, infant mortality, breastfeeding, Finland, Estonia, Russia

The roots of the transition – previous research

Population transition is usually understood to mean that when both mortality and fertility are high, mortality is the first to decline. Fertility will at this time remain almost the same, with the result that the difference between these two factors, the natural population increase, will begin to grow. When the decline in mortality begins to accelerate, fertility will also diminish and finally both fertility and mortality will drop to a much lower level than where they were earlier. Concurrently, the natural population increase will have also diminished.

[1]The author is grateful to numerous Russian (Soviet) and Estonian researchers – many already deceased – for the discussions we have had, with the Russians especially during my period in the Soviet Union in 1967-68 and with the Estonians especially after 1991.

Even though the model is schematic, its significance should not be belittled when explaining global and regional population changes and population growth in the past few centuries.

When did the population transition begin in Finland? According to Strömmer (1969, p. 96), an undisputed point in time when the population transition "could be seen to have begun in regard to Finland's demographic development as a whole, can probably not be determined. Mortality among young children, infant mortality in particular, has been declining in Finland since the 1700s".

If the total fertility and mortality of Finland in 1751-75 and their subfactors – age-specific mortality rates – are given the figure 100, we will arrive at the configuration in Table 1 (Turpeinen 1979a, pp. 102, 104, see also Turpeinen 1973a and Turpeinen and Kannisto 1997).

Table 1. Total fertility and mortality in Finland in 1751–1925

1 = total fertility, 2 = infant mortality, 3 = mortality among 1–9-year-olds
4 = 10–29, 5 = 30–49, 6 = 50–64, 7 = over 65-year-olds, 8 = total mortality

Period	1	2	3	4	5	6	7	8
1751–1775	100	100	100	100	100	100	100	100
1776–1800	90	93	116	108	102	104	107	98
1801–1825	82	91	115	112	107	122	124	97
1826–1850	79	85	97	105	101	110	117	90
1851–1875	82	81	123	125	117	124	130	101
1876–1900	83	66	80	92	76	79	98	74
1901–1925	69	50	51	109	78	76	95	63

It is easy to see from Table 1 that two population factors, total fertility and infant mortality, declined hand-in-hand. There is also reason to assume that there is not only a positive correlation between these two factors but also a causal relationship: the decline in infant mortality had an impact on the decline in total fertility. The decline in infant mortality again was so great that it also had a significant effect on the decline in total mortality. A small exception does occur during the period 1851-75, which is explained by the catastrophic mortality of 1866-68 (Turpeinen 1986). Although infant mortality was exceptionally high during these years of terror (Turpeinen 1988), it was not high enough to raise infant mortality for the entire period of 1851-75 any higher than it was in 1826-50.

In contrast to infant mortality, mortality among 1-9-year-olds did not drop below the level of 1751-75 until 1826-50, and even then only slightly below. This decline is mainly explained by the massive program of smallpox vaccinations that was carried out

and the definitely stronger decline in mortality from smallpox specifically in the years 1826-50 compared to the earlier period (1801-25) (Turpeinen 1980a). In 1851-75, however, mortality among 1-9-year-olds was exceptionally high. It can be explained only partially by referring to the unusually high mortality of 1866-68. It should also be emphasized that many diseases which took the lives of children – including diphtheria and scarlet fever – were already raging in 1851-65, before the national catastrophe (Turpeinen 1972).

Mortality among those over 10 years of age was clearly higher in the hundred years between 1776 – 1875 than in 1751-75. An especially important reason for this was the rise in deaths from tuberculosis (Turpeinen 1972 and Turpeinen and Kannisto 1997).

Table 1 shows that in 1876-1925 the population transition was gathering speed. There was already a strong decline in mortality in all age groups in 1876 –1900. In explaining this phenomenon one must emphasize not only the revolution in medicine but also the rise in the standard of living brought about by industrialization. One should also not forget development in technical areas, especially in municipal engineering, where the construction of water and sewage systems played a central role (Turpeinen 1995). During the next period, 1901-25, the decline in mortality was accompanied by a steep decline in total fertility.

Is it possible to show that it was in the latter half of the 1700s that the demographic transition began? What if it already began immediately after the high death toll years (1696-97) or even earlier? Even if the matter demanded further investigation, research thus far already gives strong support for the onset of the transition occurring at the end of the 1700s (Jutikkala 1945; Imhof 1976; Turpeinen 1997). This conclusion is also supported by population calculations. In a deviation from what has been traditionally accepted, the fertility and mortality figures for the early 1690s should be diminished, because the population of Finland (and in Estonia) was higher than earlier assumed (Turpeinen 1998 and 2000, Kabuzan 1990).

Why did infant mortality begin to decline in the latter half of the 1700s? Of course, the reason could not be Jenner's method of smallpox vaccination, nor even its earlier form of innoculation (Turpeinen 1980a). Nor was the spread of potato farming a background factor (Turpeinen 1977 and 1978c). The research results concerning the yearly fluctuations and regional differences in infant mortality show that the decline in infant mortality in 1751-1865 cannot be explained by pointing simply to economic factors (Turpeinen 1966, 1967, 1972, 1973b, 1978b, 1979b, 1980b, 1981, 1984a-c, Lithell 1988, Brändström 1984). The key explanatory factors have turned out to be the campaign for breastfeeding and its results. This campaign began already in the 1750s, immediately after the first population and population change data was drawn up with the founding of the Statistical Tabulation Department. This data revealed the extent of infant mortality

on the national level as well as great regional differences (Turpeinen 1978b, 1979b, 1984b and 1987). This problem, the decline in infant mortality and its seasonal fluctuations and their causes will be examined more closely in the following, using not only Finnish data, but also data on Estonia and Russia.

The sample areas of Koivulahti and Pudasjärvi

Modern medical research has shown that the composition of breast milk is a very versatile source of nourishment for an infant. The substitute used for breast milk, mainly cow's milk in the 1700s and 1800s, was not in itself dangerous for infants, but before it was ready for the child to eat, there were many risks en route. At different stages microbes, even those causing deadly diseases, could find their way into the food. In seasonal comparisons the greatest risk for this was during the summer, when the danger from microbes was at its peak, leading to an increase in infant mortality due, for example, to various diarrhetic diseases among small children (Turpeinen 1987).

The monthly mortality data of the Statistical Tabulation Department is grouped only into those under and those over 10 years of age. This data has been used previously and one result has been that mortality among those under 10 years of age was at its highest in the same areas where infant mortality was also at a peak (Turpeinen 1978b and 1979c).

Thus, if infant mortality in Finland during this period is examined according to month, the problem must be examined one case at a time. In the following, Pudasjärvi and Koivulahti have been chosen as the sample areas, where infant mortality has been examined month by month for the years 1749-73 and 1841-50. Both periods are in the premedical era. In a comparison of Finnish parishes, Koivulahti represents a peak area of infant mortality and Pudasjärvi the other extreme during the period 1749-73 (Turpeinen 1978b, p. 525). A previous study (Turpeinen 1979b, p. 7) has shown that infant mortality in 1749-73 was 548 per thousand in Koivulahti and 110 per thousand in Pudasjärvi and in 1841-50 the corresponding figures were 267 and 112. In other words, in Pudasjärvi, where breastfeeding was common, infant mortality remained at the same low level during both periods examined. On the other hand, in Koivulahti, where the traditional custom was to feed babies cow's milk using a cow's horn, (so-called horn feeding), infant mortality dropped by more than half, even though in 1841-50 it was still about 2.5 times as high as in Pudasjärvi.

Table 2. Deaths under the age of one year by age group and month in Pudasjärvi and Koivulahti in 1749–1773 and 1841–1850

I = 0–5 months, II = 6–11 months, III = under one year of age

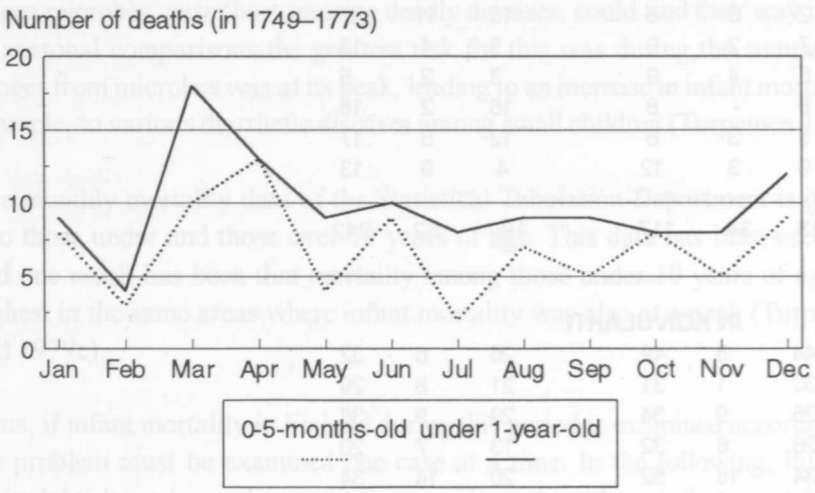
Month	In 1749 – 1773			In 1841 – 1850		
	I	II	III	I	II	III
			IN PUDASJÄRVI			
January	8	1	9	19	6	25
February	3	1	4	22	4	26
March	10	8	18	18	7	25
April	13	-	13	18	1	19
May	4	5	9	30	5	35
June	9	1	10	13	6	19
July	2	6	8	16	11	27
August	7	2	9	9	4	13
September	5	4	9	3	2	5
October	8	-	8	16	2	18
November	5	3	8	12	5	17
December	9	3	12	4	9	13
Total	83	34	117	180	62	242
			IN KOIVULAHTI			
January	44	5	49	26	6	32
February	30	1	31	21	8	29
March	25	9	34	29	9	38
April	26	6	32	13	7	20
May	34	18	52	20	14	34
June	41	8	49	13	8	21
July	65	22	87	13	8	21
August	46	16	62	27	11	38
September	41	11	52	30	7	37
October	45	10	55	18	4	22
November	32	7	39	12	6	18
December	33	3	36	22	4	26
Total	462	116	578	244	92	336

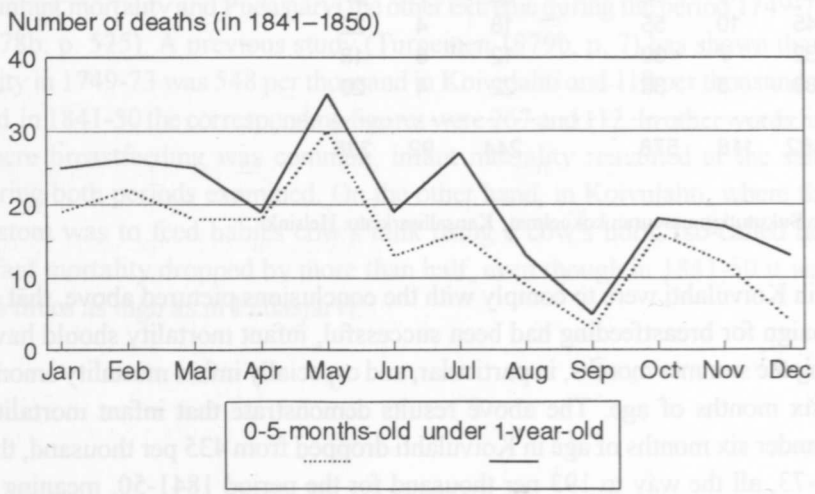
Sources: Suomen Sukututkimusseuran kokoelmat, Kansallisarkisto. Helsinki.

If the change in Koivulahti were to comply with the conclusions pictured above, that is that the campaign for breastfeeding had been successful, infant mortality should have declined during the summer months, in particular, and especially infant mortality among those under six months of age. The above results demonstrate that infant mortality among those under six months of age in Koivulahti dropped from 435 per thousand, the rate for 1749-73, all the way to 193 per thousand for the period 1841-50, meaning a

total decline of 242 per thousand. Correspondingly, the infant mortality rate for those over six months of age dropped from 113 per thousand to 74 per thousand, that is 39 per thousand (Turpeinen 1979b, 7). There is reason to assume that it was the increase in breastfeeding children under the age of six months which diminished infant mortality during the summer months. When Table 2 and Figures 1–2 show that the development of the rates is in accordance with these basic assumptions, it should be emphasized that we thus have additional support for the conclusions presented in my previous studies on infant mortality.

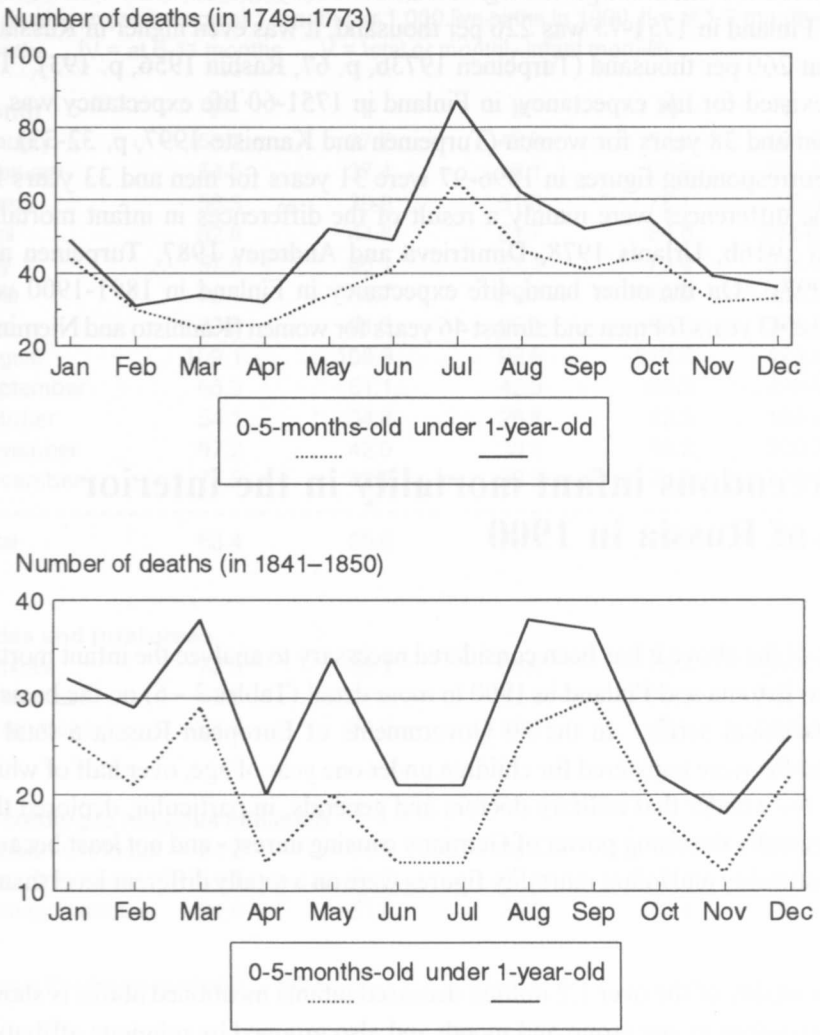
Figure 1. Deaths under the age of one year by age group and month in Pudasjärvi in 1749–1773 and 1841–1850





Sources: Suomen Sukututkimusseuran kokoelmat, Kansallisarkisto. Helsinki.

Figure 2. Deaths under the age of one year by age group and month in Koivulahti in 1749–1773 and 1841–1850



Sources: Suomen Sukututkimusseuran kokoelmat, Kansallisarkisto. Helsinki.

Similar results were also reached when comparing infant mortality. While figure for Russia in 1867-81 was 271, it was clearly lower in France in 1866-82 at 166, while in Finland infant mortality during the period 1878-80 was about the same or 165. The lowest positive finding in the European comparison was for Norway in 1866-82 at only 108. While infant mortality was clearly declining in the other countries of Europe at the end of the 1800s and in the beginning of the 1900s, Russia was stagnating. In 1909-11 infant mortality was 272 in Russia, 143 in France, 118 in Finland and 67 in Norway (Georgijevskij 1914, p. III - IV, see also Nikitenko 1901, Glebovskij and Grebenshtshikov 1907 and Rashin 1956, especially p. 193).

All in all large areas of Russia were "virgin territory" in the early 1900s in a mortality sense. On the whole, the demographic transition had not yet begun, so that Russia very much resembled the situation prevailing in Finland 150 years earlier. When infant mortality in Finland in 1751-75 was 226 per thousand, it was even higher in Russia in 1897-1901 at 260 per thousand (Turpeinen 1973b, p. 67, Rashin 1956, p. 193). The same ratio existed for life expectancy: in Finland in 1751-60 life expectancy was 36 years for men and 38 years for women (Turpeinen and Kannisto 1997, p. 32-33). In Russia the corresponding figures in 1896-97 were 31 years for men and 33 years for women. The differences were mainly a result of the differences in infant mortality (Novoselskij 1916b, Urlanis 1978, Dimitrieva and Andrejev 1987, Turpeinen and Kannisto 1997). On the other hand, life expectancy in Finland in 1891-1900 was already almost 43 years for men and almost 46 years for women (Kannisto and Nieminen 1996, p. 58, 62).

The horrendous infant mortality in the interior regions of Russia in 1900

On the basis of the above it has been considered necessary to analyze the infant mortality of Russia, Estonia and Finland in 1900 in more detail (Tables 3 - 6) on the basis of published statistical series. In the 50 Governments of European Russia a total of 1,225,233 deaths were registered for children under one year of age, over half of which were boys. No wonder that military doctors and generals, in particular, deplored this loss with especially the rising power of Germany causing unrest - and not least because Germany's mortality and infant mortality figures were on a totally different level than in Russia.

The infant mortality of the over 1.2 million deceased infants mentioned above is shown in Table 3 according to age group and month and also grouped by religious affiliation and separately for urban or rural areas.

At the end of the 1800s many Russian medical researchers and statisticians called attention to the fact that the peak of infant mortality was during the summertime (Nikitenko 1901, Kurkin 1902 and 1925, Glebovskij and Grebenshtshikov 1907). Recent research has brought forth scattered data about the apparently long heritage of this phenomenon (Blum and Troitskaja 1996, especially figure 8, p. 320).

Table 3. Infant mortality by age group and by month in the 50 governments of european Russia in 1900.

I = deaths under the age of 1 month per 1,000 live births in 1900, II = at 1-2 months..., III = at 3-5 months..., IV = at 6-11 months ..., V = total or monthly infant mortality

Month	I	II	III	IV	V
January	53.0	37.2	42.9	57.9	191.0
February	54.5	37.4	48.1	67.9	207.9
March	56.3	39.9	51.6	78.1	225.8
April	62.8	44.8	51.7	84.6	244.0
May	57.5	46.1	51.1	79.4	234.1
June	70.4	64.7	69.7	80.0	284.8
July	93.6	91.0	89.1	97.8	371.5
August	109.1	108.8	92.8	112.7	423.4
September	66.3	51.1	42.9	60.3	220.6
October	54.1	34.8	28.8	42.3	160.0
November	67.2	42.0	38.3	53.2	200.7
December	75.5	62.2	58.3	74.8	270.8
Total	68.4	55.0	55.4	73.7	252.4
Cities and rural areas					
Capitals	77.3	65.1	60.6	78.8	281.8
Other cities	60.5	49.5	52.9	70.6	233.5
Rural areas	68.3	54.6	55.2	73.5	251.6
According to religious affiliation					
Russian Orthodox	74.2	58.8	58.6	76.6	268.2
Raskolnikovs	55.5	55.2	57.1	63.5	231.3
Roman Catholics	31.8	31.8	35.6	54.1	153.3

Source: Dvizhenije naselenija ... 1900.

The Governments of European Russia, with over 98 million inhabitants in 1900, did not form a common entity. In regard to both mortality and infant mortality the Government of Perm was in the peak group and the Government of Estonia in the lowest group. When in 1900 the fertility of all 50 Governments was 49.4 per thousand and mortality 31.1 per thousand, the corresponding figures in Perm were 57.0 and 38.1 and in Estonia 29.2 and 19.2. The population of Perm at that time was over 3.1 million and that of the Government of Estonia was about 426,000 (Dvizhenije ... 1900, p. VIII).

In autonomous Finland, which just at this time was under the process of rapidly being changed administratively into a normal Russian Government, there were 2,646,000

inhabitants in 1900 or about one-half million less than in the Government of Perm. In 1900 fertility in Finland was 32.0 per thousand and mortality 21.5 per thousand (Yleiskatsaus ... 1900, p. 8 – 9), meaning that the rates per thousand were very close to those for the Government of Estonia. The infant mortality rates in 1900 were also at about the same level, generally speaking, 137 per thousand in the Government of Estonia and 153 per thousand in Finland. On the other hand, the rate for the Government of Perm, 377 per thousand, was so huge that it was difficult to find an equally massive infant mortality rate anywhere else in Europe at the turn of the century.

Table 4. Infant mortality by age group and month in the government of Perm and by month in the government of Estonia in 1900

I = deaths under the age of 1 month per 1,000 live births in 1900 in the Government of Perm, II = at 1-2 months..., III = at 3-5 months..., IV = at 6-11 months ..., V = total or monthly infant mortality, VI = infant mortality per month in the Government of Estonia, VII = difference between V and VI

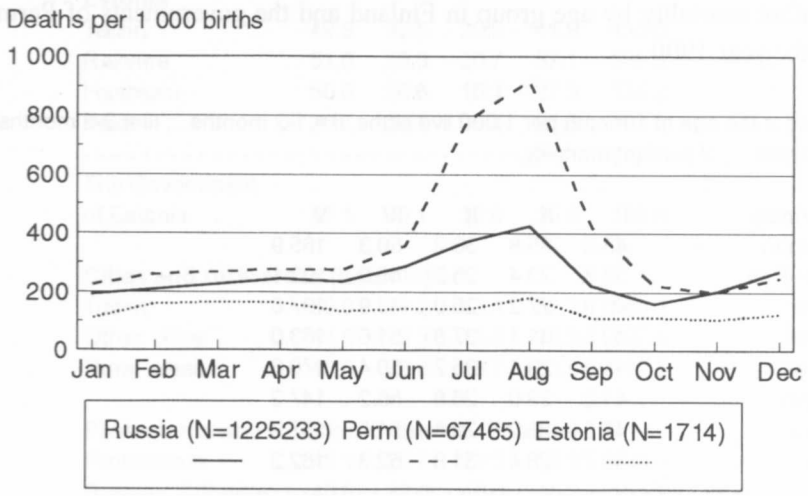
Month	I	II	III	IV	V	VI	VII
January	68.5	53.5	46.4	55.6	224.0	110	+ 114.0
February	76.8	56.4	54.8	71.4	259.4	159	+ 100.4
March	76.8	57.8	59.4	74.4	268.4	165	+ 103.4
April	85.3	59.7	57.8	74.5	277.3	163	+ 154.3
May	75.7	69.7	62.7	66.8	274.9	133	+ 141.9
June	89.0	106.8	94.5	64.3	354.6	142	+ 212.6
July	196.0	246.1	202.9	137.3	782.3	142	+ 640.3
August	261.0	284.6	205.9	168.1	919.6	181	+ 783.6
September	125.2	129.1	84.4	82.0	420.7	111	+ 108.3
October	69.8	62.8	47.6	43.0	223.2	114	+ 109.2
November	70.6	50.2	37.6	41.2	199.6	107	+ 92.6
December	78.6	66.9	49.0	52.6	247.1	125	+ 122.1
Year 1900					376.8	137	+ 239.2

Source: Dvizhenije naselenija ... 1900.

In the Government of Perm in the peak month of August 1900 7,728 boys and 7,422 girls were born, a total of 15,150 children. During those days of August 7,354 boys and 6,578 girls or a total of 13,932 died under the age of one year. Thus infant mortality for boys was 951.6 and for girls 886.3 or the total of 919.6 per thousand shown in Table 4. We can see in the same table that infant mortality was at its lowest in November (199.6 per thousand). The total number of births in November was 15,352 and the total number of deaths before the age of one year was 3,065. A total of 7,920 boys and 7,432 girls were born and the corresponding numbers of infant deaths were 1,659 and 1,406. Thus infant mortality in November 1900 was 209.5 for boys and 189.2 for girls (Dvizhenije naselenija ... 1900, p. 36 and 200).

This unusually high infant mortality in the Government of Perm and its concentration especially into the months of July and August – Table 4 and Figure 3 – did not escape the doctors' notice. The issue was raised by, among others, the local zemstvo physician, Dr. Molleson. At this point attention was also focused on there being areas in the Government where two out of three deaths occurred under the age of five years. This observation was not confined to one year only, instead it concerned the period 1870-96 (Molleson 1873 and 1903, see also Sokolov and Grebenshtshikov 1901 and Glebovskij and Grebrentshikov 1907). In addition, there were markedly large regional differences within the Government of Perm (Tables 5 and 6). In Irbit there was still one child out of two dying in 1900 before the child's first birthday – approximately the same level in infant mortality as in Koivulahti in 1749-73 – while in Tshardyn infant mortality was "only" 289 per thousand. However, here "only" still meant about twice as high a rate as those prevailing in Finland and Estonia and their subgroups (Table 5).

Figure 3. Infant mortality by age group and by month in the 50 governments of European Russia in 1900



Source: Dvizhenije naselenija ... 1900.

The question is had Estonia like Finland – and completely contrary to Russia proper - gone through a demographic transition lasting over one hundred years by the year 1900? In this sense Estonia would no longer have been "virgin" territory in view of the demographic transition. What makes it more difficult to answer the question is that only scattered data is available for Estonia. At least the research data for Tallinn in the 1700s shows that infant mortality was at its peak in the summer months. The height of infant mortality indicates the same. Infant mortality was 318 per thousand in the Estonian parish of Pühavaimu during the period 1736–1800, but only 161 in the German parish

of Nikolai (Pullat 1985, 1992 and 1997, figures calculated using the appendix in the text from 1992). Because infant mortality in 1900 was 187 for the city of Tallinn (see Table 5), apparently a definite decline had occurred in infant mortality from the 1700s to the year 1900. This is because the size of Pühavaimu parish was about one-half of Tallinn's population, but the population of Nikolai parish was only approximately one-sixth its size (Turpeinen 2000). In comparison it should be mentioned that in Vyborg during 1816-65 the corresponding figures were 306 for the Finnish parish and 155 for the German parish (Turpeinen 1984c, p. 42 and Turpeinen 2000). A similar indication is that the summer peak in infant mortality had almost disappeared in the Government of Estonia by the year 1900 (Table 4 and Figure 3).

Did total fertility also decline during this same period? For the early periods it is impossible to answer this question because no research data is available. Some scattered data would seem to point to a decline in fertility similar to that in Finland occurring already in the latter half of the 1700s. In any case, in 1900 fertility was clearly smaller than it had been over a hundred years earlier (Palli 1984, p. 58, 138, 161).

Table 5. Infant mortality by age group in Finland and the governments of Perm and Estonia in the year 1900

I = deaths under the age of 1 month per 1,000 live births, II = 1-2 months..., III = 3-5 months..., IV = 6-11 months ..., V = infant mortality,

Province	I	II	II	IV	V
Uusimaa	43.6	35.8	36.2	50.3	165.9
Turku-Pori	38.6	23.4	25.2	45.9	133.1
Häme	40.9	27.2	25.0	43.9	137.0
Viipuri	42.5	31.1	37.8	51.6	163.0
Mikkeli	45.9	29.1	35.2	60.4	170.6
Kuopio	41.2	23.0	26.8	56.2	147.2
Vaasa	49.3	28.2	29.4	51.0	157.9
Oulu	39.7	28.4	31.8	62.3	162.2
All of Finland	42.7	28.1	30.7	51.6	153.1
Cities and rural areas (Finland)					
Cities	40.6	40.2	44.6	55.7	181.1
Rural areas	42.9	26.6	28.9	51.1	149.5
Lutherans and Russian Orthodox (Finland)					
Lutherans	42.9	27.9	30.1	51.9	152.8
Russian Orthodox	33.7	44.6	64.3	36.9	179.5

Married and unmarried (Finland)					
Married	41.6	27.7	30.6	52.4	152.3
Unmarried	70.7	43.6	42.2	56.5	213.0
Perm (sample areas of Irbit and Tsherdyn)					
Irbit	151.0	141.4	112.4	102.1	506.9
Tshardyn	68.5	77.9	64.0	78.1	288.5
The Government of Perm	107.4	105.6	85.4	78.4	376.8
Cities and rural areas (Perm)					
Perm	70.8	80.4	61.7	78.2	291.1
Jekaterinburg	99.6	64.6	61.6	64.0	289.8
Other cities	103.8	84.6	83.4	74.8	346.6
Rural areas	108.0	106.9	82.3	76.3	379.5
Russian Orthodox and Islamic					
Russian Orthodox	113.2	110.7	89.1	79.9	392.9
Islamic	23.6	26.7	28.6	48.5	127.4
Estonia					
Tallinn	49.8	32.5	29.6	41.9	153.8
Rakvere	51.6	29.9	20.7	37.1	139.3
Haapsalu	50.0	26.6	16.1	27.5	120.2
Paide	26.7	28.1	15.1	33.6	103.6
The Government of Estonia	47.1	30.1	22.6	36.8	136.6
Cities and rural areas (Estonia)					
Tallinn	50.0	41.2	43.1	52.3	186.6
Other cities	44.0	19.3	13.8	30.3	107.4
Rural areas	46.6	28.3	18.7	33.9	127.5
Protestants and Russian Orthodox (Estonia)					
Protestants	48.1	29.7	20.2	35.3	133.3
Russian Orthodox	40.6	32.3	40.6	48.2	161.7

Source: Dvizhenije naselenija ... 1900 and Yleiskatsaus ... 1900.

Table 6. Infant mortality in the governments of Perm and Estonia by area in 1895–99 and in 1900

I = average annual infant mortality in 1895-99, II = ordinal number of infant mortality by size in 1895-99, III = infant mortality in 1900, IV= ordinal number of infant mortality in 1900

Region	I	II	II	IV
IN THE GOVERNMENT OF PERM:				
Kungur	516	(1)	497	(2)
Irbit	495	(2)	507	(1)
Kamyshlov	488	(3)	455	(3)
Perm	456	(4)	391	(5)
Ohan	433	(5)	387	(6)
Solikam	428	(6)	354	(7)
Shsandrin	426	(7)	394	(4)
Jekaterinburg	403	(8)	342	(8)
Osin	382	(9)	340	(9)
Verhodur	379	(10)	314	(11)
Krasnoufa	355	(11)	317	(10)
Tshardyn	313	(12)	289	(12)
Total	419		377	
IN THE GOVERNMENT OF ESTONIA:				
Rakvere	160	(1)	139	(2)
Tallinn	147	(2)	154	(1)
Haapsalu	146	(3)	120	(3)
Paide	127	(4)	104	(4)
Total	149		137	

Sources: Grebenshtshikov 1907, p. 292, 296. Dvizhenije naselenija ... 1900.

"Covered from head to toe in piss and shit" – causes and consequences

In analyzing the above tables, the results most in need of an explanation are not only the high infant mortality in the Government of Perm, in general, and its concentration into the summer months, but also and in particular the exceedingly large differences in infant mortality between the different religious groups. While the infant mortality rate among the Islamic population in Perm in 1900 was 127 per thousand, among the Russian Orthodox it was more than three times as high or 393 per thousand. It is just as difficult to explain this using economic factors as it is to explain the unusually high

infant mortality in Perm as a whole. In a comparison made by zemstvo in the various governments at the end of the 1800s, it was found that the zemstvo of Perm had the highest expenditures for health services. In addition, health service expenditures in general had been rising continuously in the zemstvos of the different governments since the 1860s (Sokolov 1901, p. 55). On the other hand, infant mortality remained stubbornly at the same inordinately high level (Rashin 1956).

As no direct relationship with economic factors could be shown, attempts were made to explain the differences between the governments with the climate. Was there a clear correlation between the warm summers of Southern Russia and the coinciding high infant mortality? It was soon noted, however, that differences between nationalities – religious affiliations – within the same government differed so much from each other that this theory about the effect of a warm climate on microbe production and thus on high infant mortality had to be cast aside (Grebenshtshikov 1891 and Sokolov 1901, p.44)

With the official statistics showing such large differences between the infant mortality of the different nationalities, even the reliability of the data was brought into question. Further examination showed that this could not be the case. Thus the result that, for example, the average annual infant mortality among the Russians in the government of Kazan in 1875-84 was 428 and among the Tatars only 117 per thousand had to be taken seriously (Nikolskij 1899 and Sokolov 1901, p. 46).[2]

Medical, ethnographic and socioanthropological studies have clearly shown that in explaining differences in infant mortality it was imperative to investigate the nursing habits of infants more closely (Grusenberg 1890, Russkih 1897, Nikolskij 1899, Tezjakov 1892, especially p. 73, Kudrjavtsev 1900). The dividing line ran between breastfeeding and alternative feeding – quite commonly cow's milk fed through a cow's horn – thus the problem was the same as that observed earlier in Finland, even though no Russian researcher mentioned a word of this apparently because of a lack of information. Studies showed that both Tatars and Jews nursed their infants with breast milk. Even the Votjaks, a group related to the Finns and living in exceedingly poor and primitive circumstances, traditionally breastfed their babies, and despite their primitive way of life, their infant mortality was much lower than that of the Russians.

When Russian doctors strove to improve both the nursing of infants and old customs in general, they described the circumstances in a pronouncedly realistic manner. D. A. Sokolov, a professor of medicine, unceremoniously described how the Russian babies had been left almost to fend for themselves, lying in cradles, covered in piss and shit

[2] Sokolov (p. 46) presents annual infant mortality rates for Russians and Tatars. Here they have been added together and divided by the number of years. The highest figure among the Russians was 490 per thousand in 1892 and the lowest, 370 per thousand, was in 1879; among the Tatars correspondingly the highest figure (220 per thousand) was in 1883 and the lowest (110 per thousand) in 1881.

from head to toe, with flies buzzing all over, and cow's milk being fed to them through a stinking cow's horn. In short, the basic Russian way of life in the lovely summertime favored a small being – the microbe.

On the other hand, the Tatar woman took excellent care of her baby, took the baby with her far out to the fields and meadows as the work progressed and ensured that the child was breastfed even up to two years of age (Sokolov 1901, p. 44-55).

In comparing the high infant mortality areas of Russia with Finland and especially with the "Hunger Region" of Kainuu, and even with its poorest area of Ryysyranta in Suomussalmi, an interesting situation arose. At the end of the 1800s this corner of Finland provided some of the toughest stories and descriptions of poverty to the umpteenth power. Nevertheless infant mortality in this region – because breastfeeding was the general custom – was below the national average (Turpeinen 1967, 1968, 1985 and 1992).

Hygiene – both medical and social

The high level of mortality in Russia and especially of infant mortality was like a long thorn in the flesh of the entire empire. It was almost sensational that the revolution in medicine and knowledge about the effects of microbes on mortality had been available by the beginning of the 1900s for about four decades, but nevertheless Russia lagged far behind the rest of Europe in mortality comparisons.

What was the reason for this scenario? One major background factor was certainly the burden composed by the former class of tens of millions of serfs. The emancipation of the serfs in 1861 did not turn them into rapidly educated farmers any more than in past times did letting cattle out to pasture in the spring. The educating of this class and of the Russians in general became a vast movement called "going to the people", the Narodniks or populists, who nevertheless remained sympathetic to the system in power. There was more emphasis on medical hygiene than on violent social revolutionary hygiene. The census of 1897 – a discouraging task to carry out for those organizing it because of the low educational level of the people – showed how low literacy still was among the Russian people, at an absolutely bottom level compared to the situation in Finland and Estonia.

In this situation one revolutionary after another suggested steely measures in their "what should be done"-programs (stal = steel in Russian, cf. Stalin). The time for keeping quiet was over (Adamets 1992, Turpeinen 1970).

One of these sharp critics was Dr. Dmitri Ilich Uljanov (1874-1943). Uljanov, who was

born in Simbirsk, educated in Samara, Moscow and Tarto and who worked later in one of the regions with the highest infant mortality rates, joined the revolutionary movement at the age of twenty and was – all, of course, underground activity in addition to his bourgeois profession – a member of the future Bolshevist party from the year 1896. His brother, four years older and named Vladimir Ilich Uljanov – better known under his alias of Lenin – should not, of course, be totally ignored when discussing forces against Imperial Russia (Turpeinen 1970, Uljanov 1984, p. 13).

After the Bolshevists came into power, totalitarian measures taken to lower infant mortality were successful, in other words more with a pepper whip than with cabbage. At the same time millions and yet millions died. But results were reported and not only for literacy. Infant mortality, which had been 273 per thousand in 1913, already dropped to 161 per thousand by the year 1938. In 1955 it had gone down to 60 and in 1971 a rate of 23 per thousand was reached, which can well hold its own when compared to Western rates. Along with this declining trend the seasonal fluctuations in infant mortality have lost their previously so very great significance. During this period fertility and mortality also dropped from 47.0 and 30.2 per thousand, the figures for 1913, to 17.8 and 8.2 per thousand by 1971. Life expectancy, which in 1896 – 1897 was 31 years for men and 33 years for women, had more than doubled by 1969 – 1979 to 64 years for men and 73 years for women. Russia had experienced the demographic transition through Soviet power. Its totalitarian nature is underlined also by the fact that at the same time this enormous country was being industrialized and urbanized, much by force (Narodnoje hozjaiztvo ... p. 40, Anderson and Silver 1989, Andreev, Darskij and Kharkova 1992, Blum 1997, Blum, Ely and Zakharov 1992, Dmitrijeva and Andrejev 1987, Poljakov 1988, Urlanis 1978, 1985 and 1987, Wheatcroft 1983, Vishnevsky, Shkolnikov and Vassin 1991, Volkov 1992, Zajontshkovskaja 1988).

The collapse of the Soviet Union – and life expectancy

In 1985 perestroika began in the Soviet Union, leading to the dismantling of the Soviet Union. Within the borders of the Russia of 1992 life expectancy, which had been 65 years for men and 75 years for women, declined by 1995 to 58 years for men and 72 years for women (Rossijskij statistitsheskij ... 1996, p. 51, for more detailed information see Demografitsheskij ...).

One often sees claims, especially in shallow newspaper columns, that market forces are being allowed to define life expectancy in Russia even more freely than in the England of the 1840s, when Marx, to a great extent on the basis of his observations, was drawing up his renowned manifest.

Are these forces being allowed to do so? Studies are even speaking of the collapse of the Russian health care system (Shkolnikov, Meslé and Vallin 1995). If this were true, it should presumably be apparent in a substantial jump in infant mortality. However, within the borders of current Russia infant mortality was 19.3 per thousand in 1986, 18.0 per thousand in 1992 and 18.1 per thousand in 1995. No actual rise can be spoken of – and even less of a return to the 15-fold figures of Imperial Russia. In sifting through the causes of death, quite a central background factor in the decline in life expectancy appears to be the bad social hangover following the collapse of the Soviet Union, a hangover being healed with vodka, which has then led to an unparalleled rise in alcohol-related deaths, suicides, traffic accidents and homicides (Demografitsheskij ..., Kotenko and Muhajeva 1998, Kulikovskaja 1999, Mirojedov and Fedotytshena 1998). A well-known fact is that the role of alcohol is incontestable, not only in alcohol-related deaths, but also in the other causes of death mentioned. In many cases, we can also see depression and anxiety as the underlying reason, when the gods of history – and those of the Communist party – appear to have abandoned the conscientious supporters of Soviet ideology. In any case, the campaigns Gorbachev started off with much fanfare - perestroika, a break with tradition, and the violent campaign against alcohol, which dealt a heavy blow to the Russian identity – have not met with all expectations when viewed from the year 2000. The temperance movement and the Soviet Union both collapsed at the same time as King Alcohol began to gain ground.

Summary

In explaining the markedly high infant mortality in Russia at the end of the 19th century and in the beginning of the 20th, many researchers in the West have pointed to the possibility that massive infanticide may perhaps have played a role. The noted Russian researcher Boris Nikolavitsh Mironov has recently shown (1999 I, especially p. 201-06) that Russian sources do not support this conclusion in the least. There is no evidence that baby girls or children in general would have been killed on purpose in large numbers. Infanticide was always considered an enormous crime.

This study's approach to explaining the large differences in infant mortality between Russia, Estonia and Finland – and within these three regions – uses the so-called population transition theory and the arguments it puts forth.

Infant mortality in Finland in the mid-1700s was much greater in areas where breastfeeding was rare and vice versa. Campaigns on behalf of breastfeeding began in Finland already in the 1750s, and recurred from time to time over the next hundred years. Breastfeeding became increasingly common and infant mortality declined during the next hundred years in those areas where it had been exceedingly high in 1749-73. This decline was

caused specifically by the drop in infant mortality during the summer months. Compared to other methods of feeding (including horn feeding, where cow's milk was fed to the baby using a cow's horn), breastfeeding was more hygienic and thus a method which decreased the disease rate and mortality. On the other hand, in those areas where infant mortality had been low in the 1700s, it continued to remain so and was at about the same level in the mid-1800s. It was also true of these areas of low infant mortality that there was no summer peak in infant mortality in the mid-1700s nor one hundred years later.

This Finnish explanatory model has been used to study infant mortality in Estonia and Russia one hundred years ago. This model demonstrated its ability to explain the level of infant mortality and the differences between regions and different religious groups to a great extent.

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