Demographics of Burg Reuland, Belgium in the Early Nineteenth Century

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Introduction

The authors, who share a long-standing genealogical interest in the region around Burg Reuland, Belgium–located in the province of Liege close to the "border triangle" where the borders of Belgium, Luxembourg, and Germany intersect–have examined in depth that town's records from the late seventeenth century through the middle of the nineteenth century. Their work transcribing and indexing many of those records has produced a large dataset that sheds light on the demography of that area during the first decades of the nineteenth century.

We began by transcribing the town's parish church records, which survive from the late seventeenth century, followed by transcribing civil records from 1799 through 1828. The transcription of the original documents was prepared by Yvette Longstaff, a native of Nancy, France, who worked for eight years as the French reference consultant at the Family History Center in Salt Lake City. In that capacity, she transcribed countless European documents, including numerous trips to work on original documents in European archives. Stan Birnbaum, the spouse of a distant cousin of hers who is also a descendant of several Burg Reuland families, provided review of the Latin church records, minor design assistance, formatting of the final manuscript, along with extraction and analysis of demographic data.

To date, we have transcribed and analyzed four sets of records that are available through the Family History Center in Salt Lake City:

Title	Microfilm no.	Digital file no.
Taufen, Heiraten, Tote 1661-1773 Notizen, Nachträge 1642-1760 Taufen, Heiraten, Tote 1784-1797	613920	8114283
Naissances, mariages, décès 1797-1815	786530	487444
Naissances, mariages, décès 1816-1823	786531	487445
Naissances, mariages, décès 1824-1828	786532	487446

The first of these transcriptions is now available in PDF format through *FamilySearch.org*, the Family History Center's online resource collection. The subsequent transcriptions have also been contributed to the Family History Center and should be available online by the end of 2021.

While the parish register is an extraordinary genealogical source, the consistency and quality of data does not lend itself to comprehensive demographic analysis. The quality of record-keeping changed dra-

matically after Napoleon's army conquered this area in the late eighteenth century, since the French occupiers introduced civil record-keeping. That practice brought rigorous recording of births, deaths, and marriages to this region for the first time. The quality of record-keeping improved again after the end of the French period with the transition Prussian rule in 1815. The change from the free-form text used during the French period to the standardized recording forms used in the Prussian period brought increased consistency and clarity to the documentation of vital events. Note that both the parish and civil records include a number of villages around Burg Reuland that in earlier years were part of the parish, and in the nineteenth century were part of the Burg Reuland administrative district.[1]

We have excluded the years 1797 and 1798 from our study since those records appear to be non-contemporaneous and incomplete.[2] The table below summarizes the 3,740 records from 1799 through 1828.

TABLE 1: EVENTS BY DOCUMENT COLLECTION

Years	Births	Deaths	Marriages
1799-1815	962	811	258
1816-1823	459	405	133
1824-1828	374	244	94
Totals	**1,795**	**1,460**	**485**

This table enumerates events by the years in which the events were recorded. At this time, when the vast majority of births and deaths happened at home, it was not uncommon for an event to be recorded one or two days later. All subsequent analyses of vital events by year are based on the date of the actual event rather than the date on which it was recorded.

In addition to our comprehensive study of data from 1799-1828, we also consulted records from 1829-1838 to help understand a change that emerged in the 1820s. Our study of those years was limited to counting births, deaths, and marriages by year. That survey added another 1600 events to our overall review. Table 2 (below) summarizes all events by year.

Finally, an important disclaimer: we are neither demographers nor statisticians. While our analysis relies on nothing more complicated than high school mathematics, we trust that it still provides useful insights into the demography of early nineteenth-century Burg Reuland.

TABLE 2: VITAL EVENTS BY YEAR

Years	Births	Deaths	Marriages
1799	61	41	16
1800	94	69	15
1801	49	36	10
1802	67	60	23
1803	37	56	15

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[1] See page 8 for a list of the 13 towns that comprised the administrative district.

[2] Just 38 births were recorded for the year 1797, 16 for 1798. 34 deaths are recorded for 1797, just 11 for 1798. This is just under half the average number of births and deaths for this time period.

TABLE 2: VITAL EVENTS BY YEAR

Years	Births	Deaths	Marriages
1804	43	35	17
1805	63	34	7
1806	56	25	14
1807	62	54	13
1808	45	40	14
1809	58	53	15
1810	52	65	14
1811	67	59	17
1812	54	44	15
1813	45	41	12
1814	53	51	22
1815	56	48	19
1816	55	52	18
1817	45	53	18
1818	52	68	16
1819	59	47	8
1820	56	54	21
1821	57	43	18
1822	78	45	16
1823	59	44	18
1824	83	37	18
1825	59	74	18
1826	75	54	17
1827	103	32	21
1828	56	48	20
1829	85	63	16
1830	85	69	23
1831	80	37	12
1832	82	54	17
1833	92	38	18
1834	78	59	20
1835	83	70	15
1836	89	63	22
1837	85	81	16
1838	80	71	11
Total	**2,638**	**2,067**	**655**

Births

Chart 1, which shows births by year, illustrates an important change which takes place in the early to middle 1820s: the birth rate for the Burg Reuland district rises rapidly.

CHART 1: BIRTHS BY YEAR
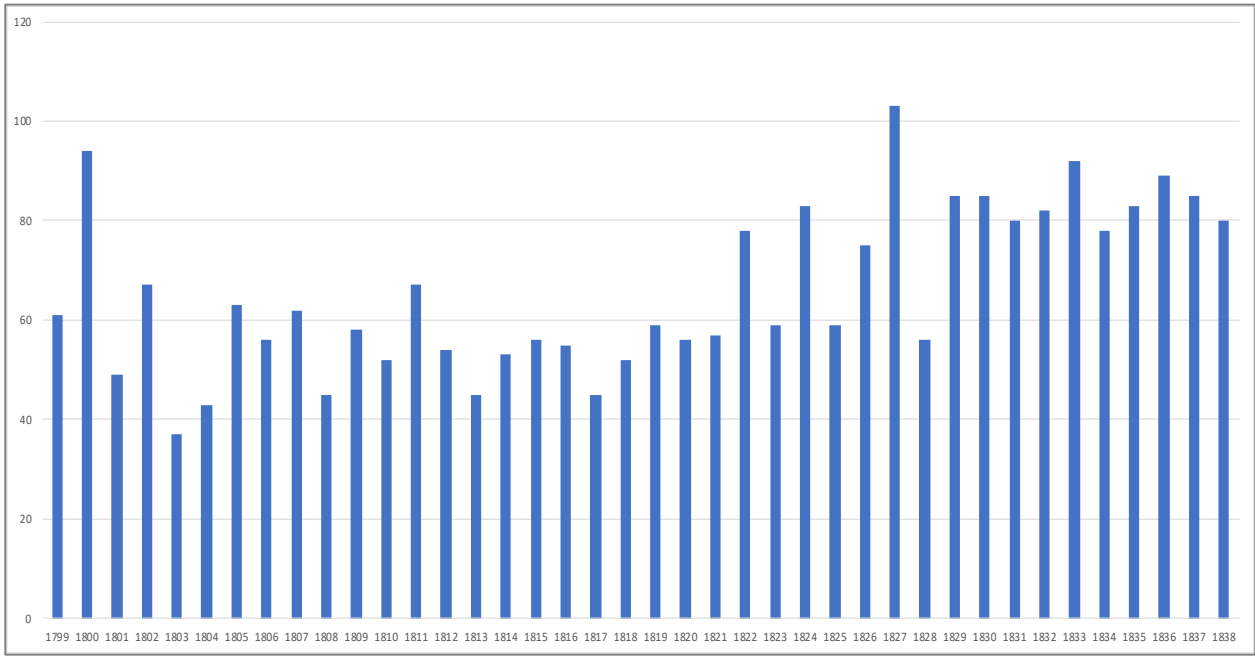
This graph reflects the two different patterns of births within this forty-year period. For the years 1799 through 1823, the first 25 years of this study, the birth rate remains more or less stable, with a dramatic and inexplicable leap in births in 1800. In all other years, there are about 40 to 65 births every year. Starting in roughly 1824 and continuing through the last 16 years of this study, the rate of births takes off, with a new norm of between 60 and 85 births in most years. The table below summarizes the key characteristics of these two periods, with a graphic illustrating the discontinuity between these periods in the chart on the second following page.

TABLE 3: BIRTHS BY PERIOD

Years	Average births	Average deaths[3]	Excess of births over deaths
1799-1823	56.9	48.7	8.2
1824-1839	81.0	56.7	24.3
Rate of increase	**42%**	**16%**	**195%**

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[3] A full discussion of mortality appears in the next section. This data is included in this chart to calculate the excess of births over deaths, which in turn, supports calculating population growth during each of these two periods.

CHART 2: DISTRIBUTION OF AVERAGE ANNUAL BIRTHS BY PERIOD
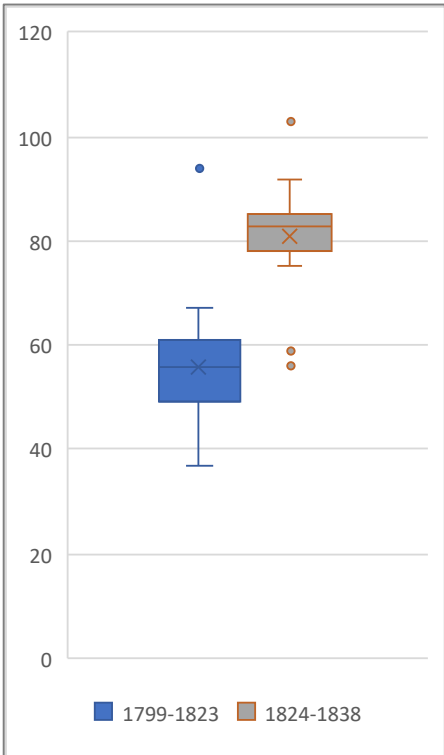
How to interpret this chart
This one of several "box charts" included in this study. The solid box shows the range of the second and third quartile of data, with a line for the median and "x" marking the mean. That is, the size of the box reflects the middle 50% of the data points. The lines, or "whiskers" above and below the solid area reflect the distribution of the lowest and highest quartile, excepting outlier data points, which appear as colored dots above and below the box and whiskers diagram.

The evidence is clear: Burg Reuland's birth rate soars in the mid-1820s. Average births for the late 1820s are 32% higher than for the previous quarter century and will increase by another 10% in the 1830s. By the end of the 1830's, Burg Reuland's birth rate has shot up by 47% over a quarter century earlier. Burg Reuland's population, little changed in the first quarter of the nineteenth century, will grow at a remarkable clip during the second quarter of the century.

We can only guess at the forces that drove this increase.[4] The most likely reason has to do with a change in inheritance law which the French introduced during their occupation of most of German-speaking Europe. Traditional local inheritance practices typically reserved all or almost all of a man's estate (woman normally did not own property at this time) for the oldest son. The Napoleonic Code of Law took effect in France and all French-held lands in 1804. That code institutionalized many of the French Revolution's beliefs in equality, mandating a system known as "partible inheritance." This new practice required equal division a man's estate among all his sons. In the long term this practice led to economic disaster. After a couple of generations of dividing landholdings into ever smaller pieces, farms became too small to support a family, one of the forces that led to the massive overseas exodus of German in the 1840s and 1850s. But in the short term, partible inheritance made it possible for more families to remain on their ancestral land and start their own families rather than leave the area in search of economic opportunity. While the law nominally took effect in 1804, it took as long as a couple of decades for local practice to catch up with the legal mandate. Nor did that practice end with the defeat of the French in 1814. The

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4   We are grateful to Mr. K. D. Klauser, Director of *Zwischen Venn und Schneifel*, a local history museum in St. Vith, Belgium for his help with these suggestions.

Kingdom of Prussia continued to base much of its law on the Napoleonic Code, including its requirement of partible inheritance. Interestingly, in the nineteenth century, the Napoleonic Code became the basis not just of German law, but of most modern law codes in continental western Europe.

It is also possible that the restored power of the Catholic Church and influence of clergy also helped drive up the birth rate. The French Revolution's bitter anti-clericalism, sustained through much of Napoleon's reign (more for his convenience than because of his beliefs), required Catholic priests in this overwhelmingly Catholic area to lower their profile, in some cases, even going into hiding or celebrating sacraments in secret. Perhaps part of their restored role after 1814 led priests to once again demand that families have as many children as possible, consistent with the Catholic Church's traditional value system.

By inference, we can also estimate the percent of illegitimate births in Burg Reuland, assuming that records that make no mention of a father record illegitimate births. For the 13 years from 1816 through 1828, there were 22 such births, or 2.6% of the total.

It is not clear if there is a seasonal trend to births during this time period. Seasonal variation in births is a common phenomenon in many societies for reasons that are seldom clear.[5] In the United States, births are lowest in late spring and highest in late summer and early fall. In Europe, births tend to peak in the spring. The chart below documents 1799-1823 births by month, with the months with largest number of births on the left and months with least number of births on the right.

CHART 3: BIRTHS BY MONTH

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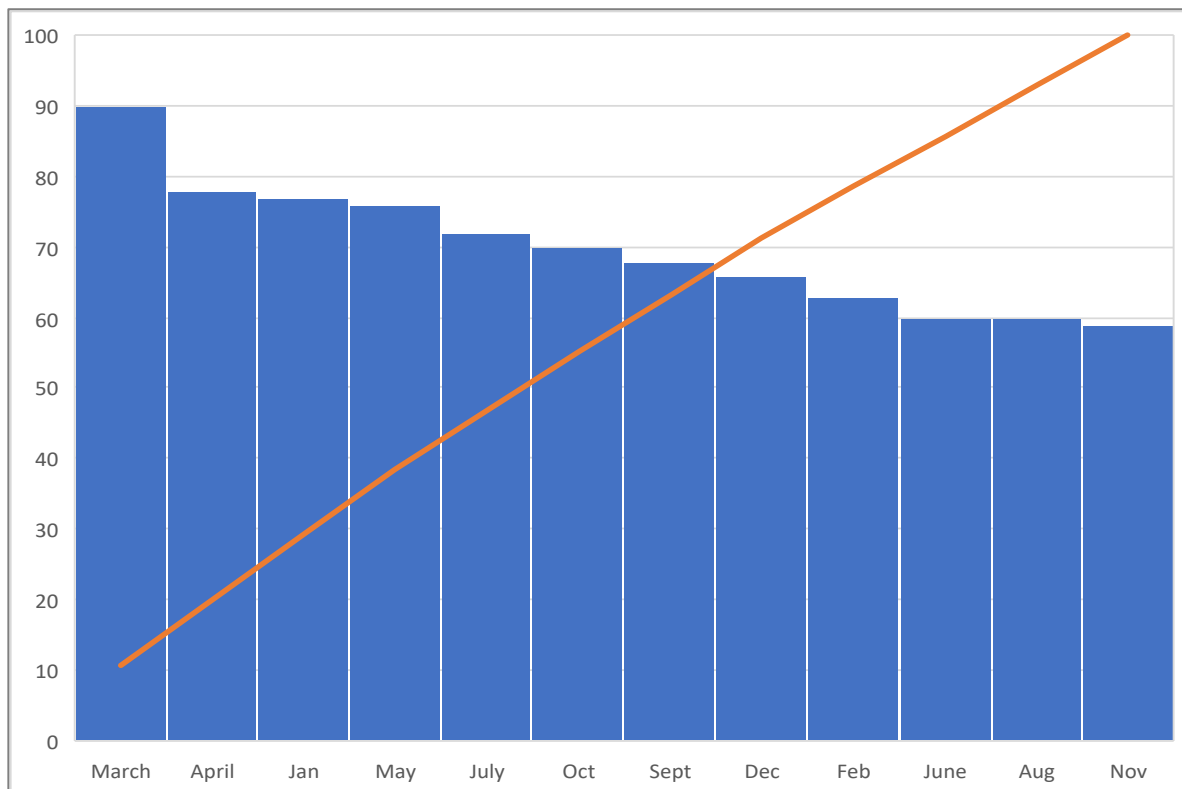
[5] "Human Reproduction" in *Oxford Academic*, Vol. 16 no. 7 (July 2001), https://academic.oup.com/humrep/article/16/7/1512/693437.

This picture is ambiguous, without a clear pattern other than a modest surge during March and April. Aggregating the data by season presents a somewhat clearer picture. Still, it is debatable whether this apparent spike is significant or not. It could just be a random blip in the data that has no statistical significance. Perhaps Burg Reuland in this time exemplified the European pattern of higher birth rates during the spring, perhaps not.

CHART 4: BIRTHS BY SEASON
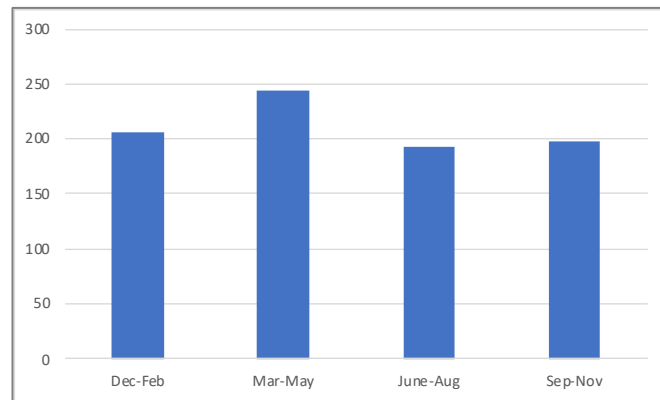
Finally, the gender ratio at birth, that is, ratio between male births and female births is very close to the modern natural average of 105 male births for every 100 female births. The primary reason why boys naturally outnumber girls at birth may be connected to the greater vulnerability of boys to early childhood death. Global data shows that male children are more susceptible to both complications in childbirth as well as infectious disease. In the case of Burg Reuland, the 462 births between 1816 and 1823 includes 236 boys and 226 females. That is, there are about 104 male births for every 100 female births. Mortality data for the same period also shows that boys are almost 8% more likely to die before age 10 than girls (see page 18).

Population dynamics

Understanding birth data permits estimating both the population of the Burg Reuland district and its rate of growth. For most of the nineteenth century, the birth rate for Germany was 38 births per 1000 persons. More exactly, for the years 1799-1823, that rate was 37.8 which allowed us to estimate Burg Reuland's population during the first quarter of the nineteenth century, when the birth rate was stable. Two assumptions are required to derive this estimate:

- First, we assume that the population dynamics of Burg Reuland were the same as those for Germany in general. Note that the average birth rate for Belgium, located well north of Burg Reuland at this time,[6] was about 10% lower. It seems reasonable to assume that the rate for rural, German-speaking Burg Reuland was equal to or close to the figure for Germany in general than for the more urbanized Belgian lands to the north.
- Second, we assume that the rate of in-migration, that is persons moving to the Burg Reuland district from outside the area was approximately equal to the rate of out-migration, that is persons moving from the Burg Reuland district to outside areas. While this assumption is neither provable nor disprovable, the relative consistency of the rate of births and deaths during this fifteen-year period suggests it is reasonable.

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[6]   The mostly German-speaking district of Eupen-Malmedy, part of Prussia and then Germany until the end of World War I, was assigned to Belgium by the Treaty of Versailles in 1919. Burg Reuland is tucked into the southeast corner of this region, across the Our River from modern-day Germany.

Basic algebra yields an estimate of Burg Reuland's population. If the birth rate for that area during this time was 37.8 per 1,000, dividing Burg Reuland's average number of births (57.38) by the German rate of 37.8 per 1,000 yields a population estimate which rounds off to 1,500 persons for Burg Reuland and its surrounding towns (we round off the result to avoid giving this figure a precision it lacks). If the birth rate of this area was more like that of Belgium than that of Germany, 1,400 would be a better estimate.

This method no longer works once the birth rate spikes to an average of 75 births per year in the mid 1820s. Given average birth rates in Germany at that time, Burg Reuland's new average of 75 births annually suggests a population well above 2,000 rather than the prior figure of 1,500. Of course, Burg Reuland's population did not jump by a third between the early 1820s and late 1820s. However, that data supports an assumption that Burg Reuland's population was poised to grow by almost 50% during the second quarter of the nineteenth century.

Analyzing the excess of births over deaths helps us estimate the growing rate of population growth. For 1799-1823, that figure averaged about 8 per year. That number jumps to about 24 for 1824-1838. This increase, even after factoring in the high rate of infant mortality, suggests that annual population growth increased from .6% per year in the first quarter of the nineteenth century to about 2% per year during the second quarter of the century. A region experiencing a growth rate of .6% doubles in size every 120 years while a growth rate of 2% per year doubles the population every 36 years.

Because all records provide the name of the resident's village, birth records also point to the relative size of these villages. In general, more children will be born in villages with higher populations, and each village's population will be a function of that village's rate of birth. Table 3 tabulates 1799-1823 births by village, from most to least; that is, from what we assume is the largest village to what we assume is the smallest village.

TABLE 4: BIRTHS BY VILLAGE, 1799-1823

Village	Births	% of total
Reuland	90	24%
Ouren	85	22%
Durler	32	8%
Bracht	30	8%
Lascheid	30	8%
Lengeler	22	6%
Oberhausen	22	6%
Steffeshausen	17	4%
Alster	14	4%
Auel	12	3%
Weweler	11	3%
Malscheid	8	2%
Stoubach	5	1%
Total	**378**	**100.0%**

The chart below provides a graphical representation of the differences in births for the district's villages, which, in turn, should serve as a proxy for each village's total population.

CHART 5: INFERRED RELATIVE SIZE OF VILLAGES, 1799-1823
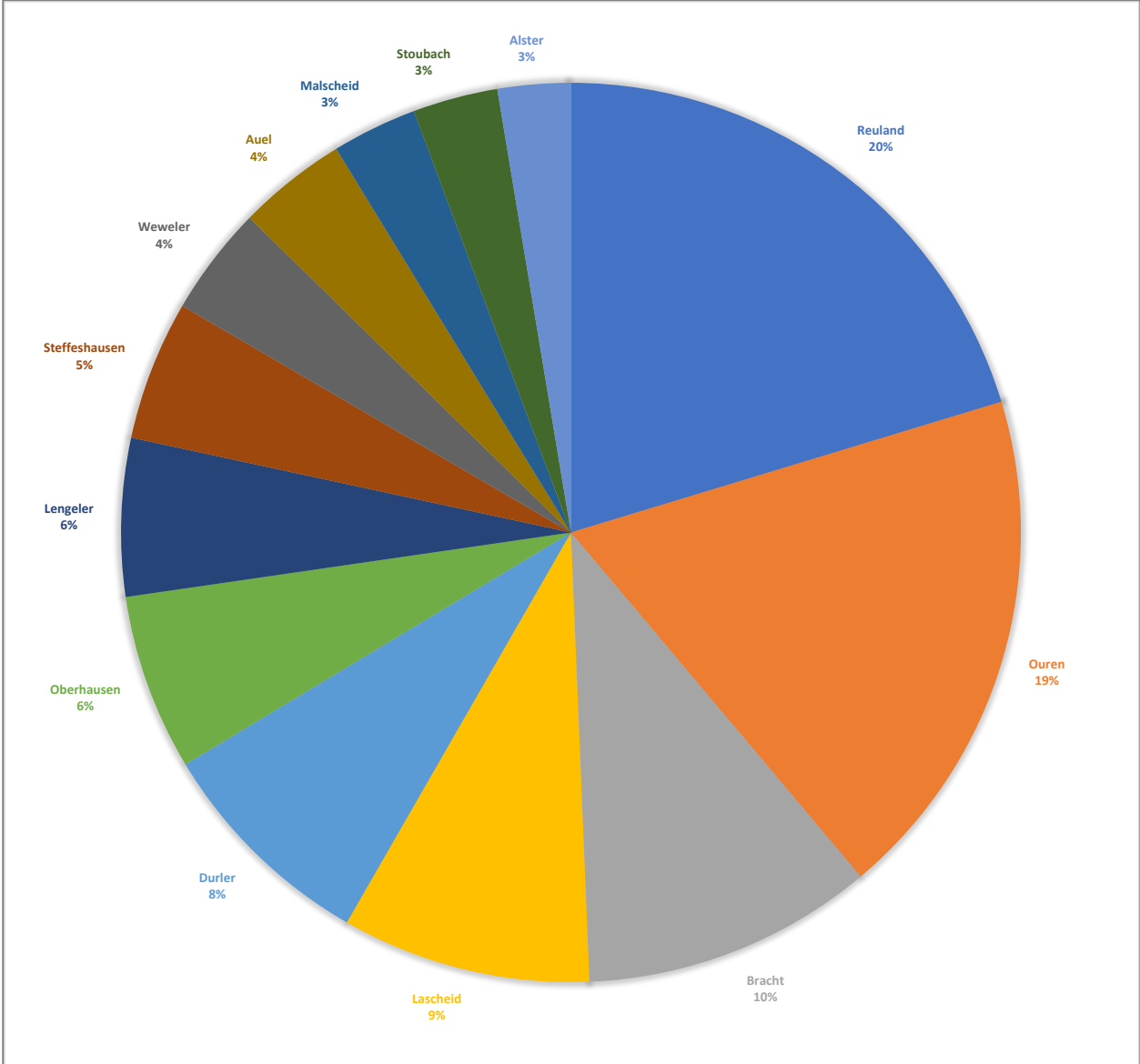
The limited number of data points, especially for the smallest villages, warns against giving these calculations a precision they lack. In more general terms, the data points to three magnitudes of village size in the Burg Reuland district:

Group 1.   the largest villages of Reuland and Ouren, roughly the same size, each home to a few hundred people during the early nineteenth century

Group 2.   the six mid-sized villages of Bracht, Lascheid, Durler, Oberhausen, Lengeler, and Steffeshausen, with populations that range from a fourth to half the size of Reuland or Ouren

Group 3.   the five tiny hamlets of Weweler, Auel, Malscheid, Stoubach, and Alster, each home to about a dozen or so households.

Our data by village excludes records from 1829-1838 since we did not tabulate births by village for those years. However, our detailed analysis of 378 births between 1824 and 1828 shows that all villages in the district other than tiny Stoubach experienced increases in population during the second quarter of the nineteenth century. In general, the rate of growth varied with size: the largest villages (Reuland and Ouren) have approximately a 90% increase in birth rate, the mid-size villages have almost a 50% increase in birth rate, and the smallest villages have a 30% increase.
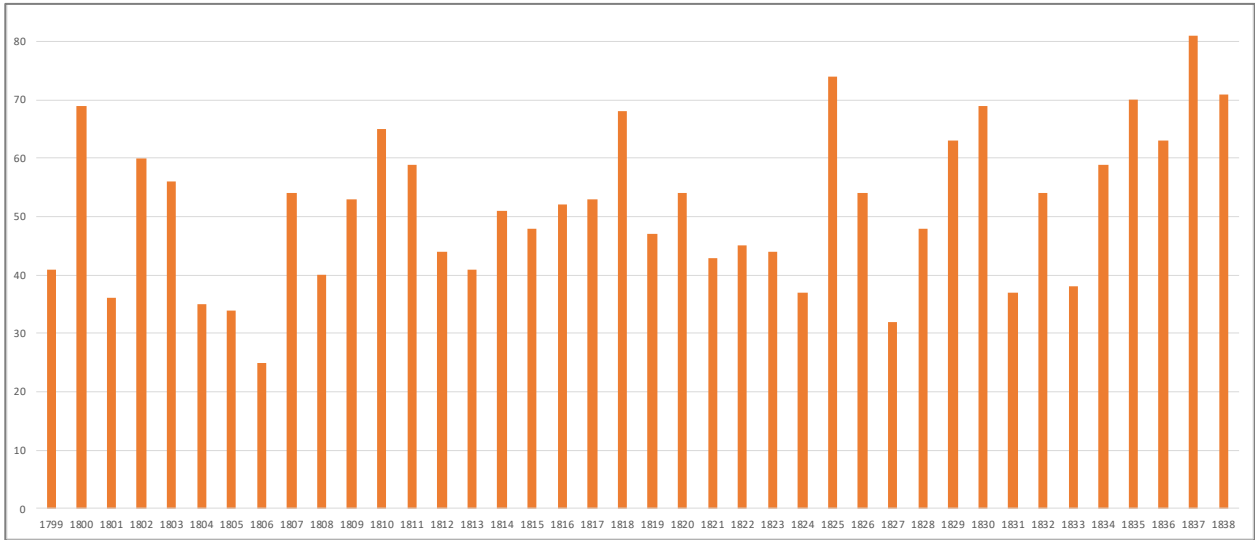
Mortality

The inclusion of an age at death provides rich data for understanding mortality. Three circumstances introduce a note of caution:

- In the early nineteenth century, many people—especially in rural societies–had little idea of their exact date of birth. It would not have been uncommon for a person's own understanding of their age to be off by as much as several years.
- By definition, the ages provided at the time of death are provided by family members, introducing additional opportunity for errors or misunderstanding. This is particularly the case for deaths of the elderly, who may often have been described as "about 60" or "about 80." Our other genealogical work suggests that overstating the age of the elderly is much more common than understating their age.
- While the registrar could have consulted local records when they existed for deceased persons from the Burg Reuland area, there is no evidence that this happened. Burg Reuland's records from before 1799 were parish records rather than civil records, with gaps in the 1780s. And for persons born outside the area, there would have been no simple way to verify the data.

While the data therefore lacks total reliability, it nonetheless provides a meaningful picture of mortality in Burg Reuland. Even if some of the ages provided at death are estimates, the broad picture is clear. The chart on the next page graphs deaths by year. The view of mortality by year is best described as noisy, without any apparent pattern.

CHART 6: DEATHS BY YEAR

However, analyzing seasonal variance in mortality leads us to a more orderly portrait of mortality during these years. Analyzing deaths by month shows that mortality is much higher during the heart of winter, with that higher death rate lingering into the spring, not surprising given the boost that cold weather gives to bacterial and viral infections. The chart below shows average deaths by month, from most deadly to least deadly.

CHART 7: TOTAL DEATHS BY MONTH
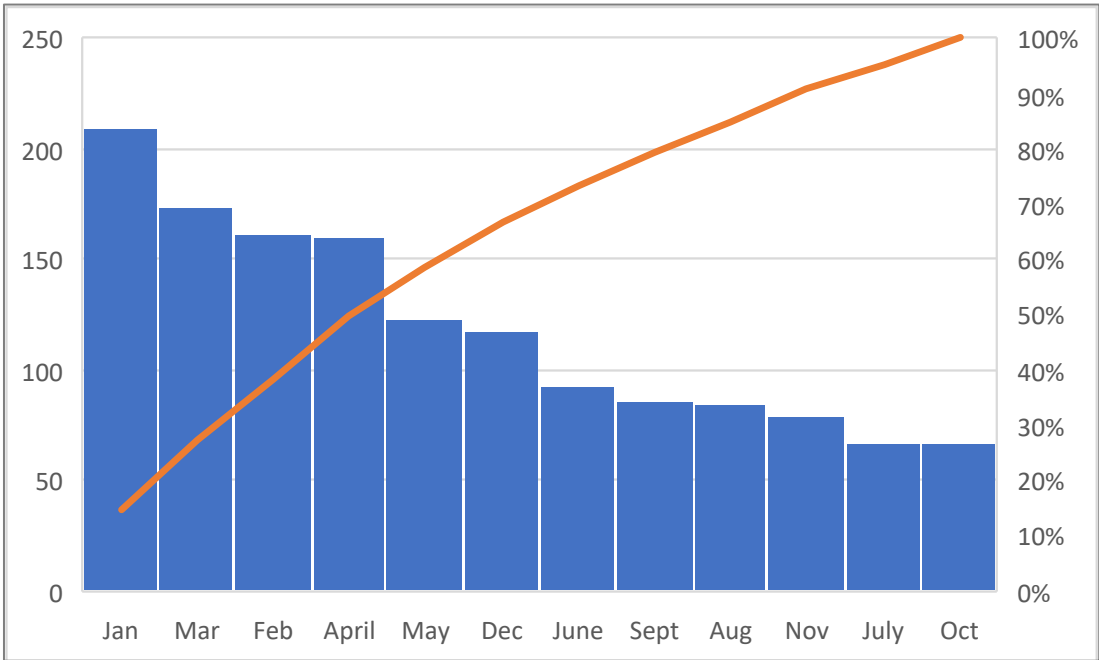
The table below illustrates the impact of seasonal variance on mortality by calculating deaths based on seasons rather than calendar years. It turns out that almost two-thirds of the deaths occurred during the colder part of the year.[7]

TABLE 5: MORTALITY BY SEASON

| Year	Total	*Cold months*		*Warm months*	
		Number	Percent	Number	Percent
1799	59	50	85%	9	15%
1800	33	20	61%	13	39%
1801	55	35	64%	20	36%
1802	60	39	65%	21	35%
1803	28	20	71%	8	29%
1804	38	29	76%	9	24%
1805	24	12	50%	12	50%
1806	47	22	47%	25	53%
1807	44	33	75%	11	25%
1808	43	30	70%	13	30%
1809	73	62	85%	11	15%
1810	49	28	57%	21	43%
1811	45	29	64%	16	36%
1812	42	31	74%	11	26%
1813	47	28	60%	19	40%
1814	46	37	80%	9	20%
1815	54	29	54%	25	46%
1816	51	32	63%	19	37%
1817	68	51	75%	17	25%
1818	45	25	56%	20	44%
1819	58	40	69%	18	31%
1820	44	35	80%	9	20%
1821	43	25	58%	18	42%
1822	45	28	62%	17	38%
1823	35	28	80%	7	20%
1824	72	50	69%	22	31%
1825	61	37	61%	24	39%
1826	29	14	48%	15	52%
1827	47	24	51%	23	49%
Total	**1,385**	**923**	**67%**	**462**	**33%**

Each year listed in the first column is for a twelve-month period beginning on Dec. 1 of that year. For example, the cold months in the 1799 row refers to the six-month period from Dec. 1 1799 through May 31, 1800. The warm months refers to the six-month period from June 1, 1800 through Nov. 30, 1800.

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7   In this region, average temperatures today during April and October are nearly identical. Of course, May is a good deal warmer than November, but it follows the colder months, when many people may have become ill, only to die later in the spring after failing to recover. November, following the warmer months of summer and fall, was for that reason less lethal.

Unlike births, the distribution of deaths by month shows the importance of seasonal factors. Over this 28-year period, just over two-thirds of all deaths occur during the cold half of the year. In five cases, the winter and early spring months account for 80% of all deaths. During this time when survival was always precarious, winters were especially dangerous.

Charting deaths by climactic year rather than calendar year–that is, starting on Dec. 1 rather than Jan. 1–provides a different picture of mortality during this time period (see next page). During an average year–the middle 15 data points out of 29 years reviewed–an average of 47 people died each year, with a low of 43 and high of 55. In the 7 best years, an average of 33 people died. In the 7 worst years, that average shot up to 64. The data also shows that the 7 worst years had higher infant mortality: in those years, children under 10 accounted for 48% of all deaths, compared to 40% for all other years.

CHART 8: DEATHS BY CLIMACTIC YEAR (DEC. 1 – NOV. 30)
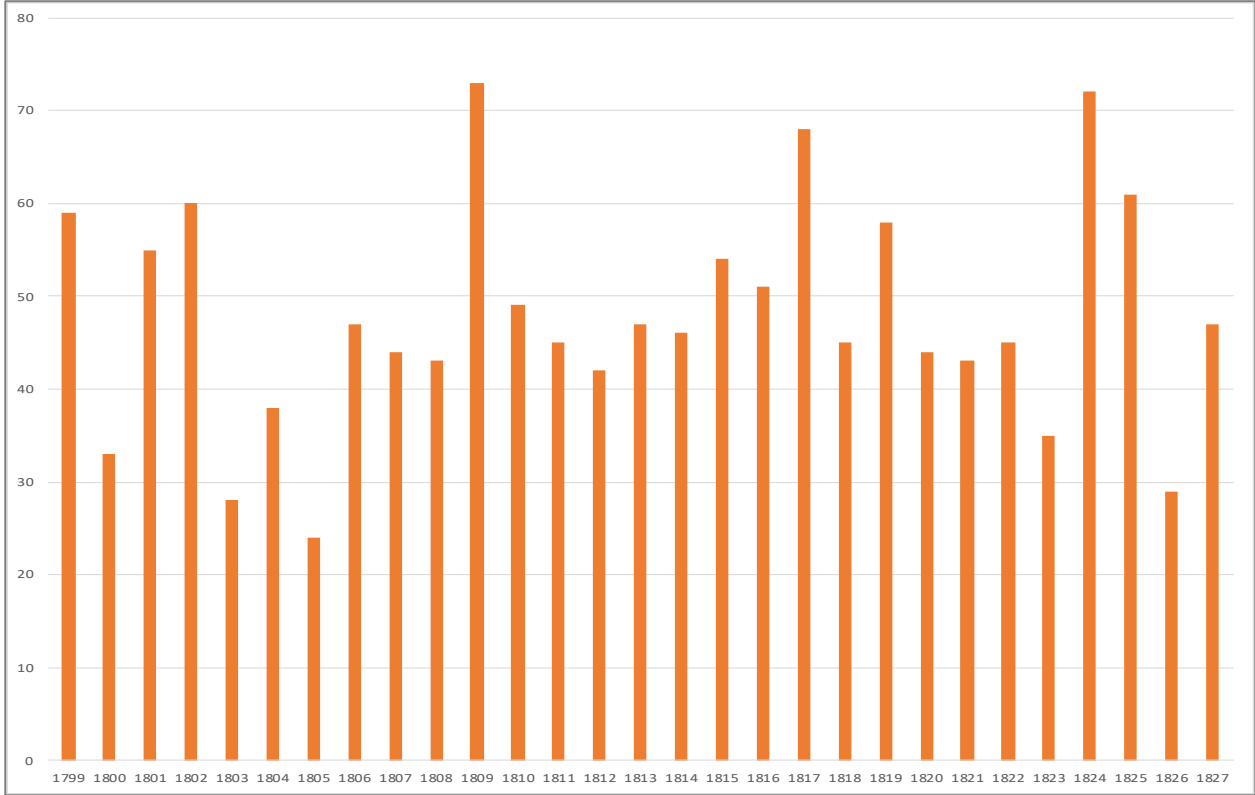
Each column in this graph is for a twelve-month period beginning on Dec. 1 of that year.

The chart on the right compares the distribution of deaths by years for the two time periods under study, namely the years of stable birth rates (1799-1823) and the years of rising birth rates (1824-1839). The distribution of deaths by year from 1824-1838 shows much greater variance, with many better years where the death rate is more or less similar to 1799-1823. At the same time, there are a numerous bad years where mortality far exceeds the earlier rate. Note that the relative positions of the bars with the whiskers reflects the increase in the death rate after 1824. Also, the mean and the median (solid line and "x" in the bars) are also higher during the second time period. From 1799-1823, deaths averaged 48.7 per year, rising 16% to 56.7 from 1824-1839. This increase is a predictable result of rapidly rising birth rates. Given the high infant mortality of the times–including a 20% chance of death in the first year of life–a sudden increase in births will produce a corresponding rise in the death rate of infants and young children (see Table 5, below). For this reason, the years after 1823 are excluded from calculations of life expectancy.

CHART 9: DISTRIBUTION OF DEATHS
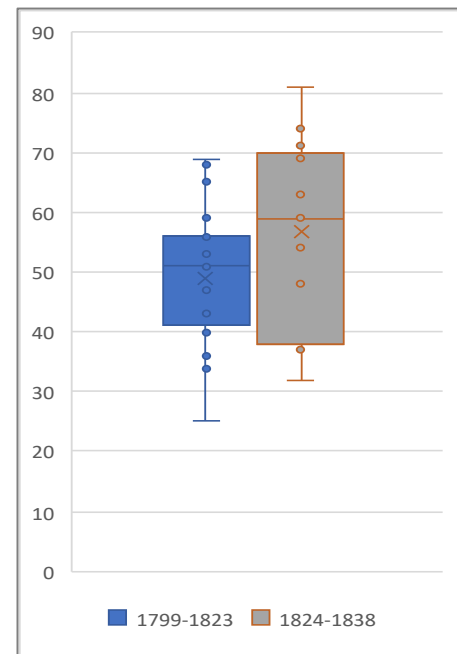
The table below, which breaks down deaths by years and age range, shows the vulnerability of each 10-year age cohort.

TABLE 6: AGE AT DEATH

Year	under 10	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90+	un-known	year total
1799	17	3	5	3	2	3	0	2	0	0	6	**41**
1800	25	1	0	1	6	4	10	7	4	0	11	**69**
1801	14	3	3	3	2	2	4	4	0	1	0	**36**
1802	25	4	3	5	3	7	5	4	1	0	3	**60**
1803	36	3	1	2	5	5	1	0	1	0	2	**56**
1804	12	1	1	3	3	1	4	6	1	0	3	**35**
1805	17	4	1	1	3	3	3	1	0	0	1	**34**
1806	9	1	2	0	4	2	2	2	2	0	1	**25**
1807	19	3	4	1	5	11	2	5	2	1	1	**54**
1808	13	2	1	1	5	3	8	3	2	1	1	**40**
1809	24	6	1	2	2	8	5	4	1	0	0	**53**
1810	32	4	4	6	8	2	6	2	1	0	0	**65**
1811	21	4	4	3	4	3	10	5	1	0	4	**59**
1812	11	1	0	2	5	7	6	8	0	0	4	**44**
1813	16	1	4	3	5	3	2	6	0	0	1	**41**

TABLE 6: AGE AT DEATH

Year	under 10	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90+	un-known	year total
					age at death							
1814	13	5	2	4	7	9	4	3	1	0	3	**51**
1815	27	4	3	1	3	2	5	3	0	0	0	**48**
1816	30	2	0	0	3	8	4	3	1	0	1	**52**
1817	22	5	4	2	2	4	8	6	0	0	0	**53**
1818	23	4	2	3	8	9	14	2	0	1	2	**68**
1819	21	5	3	5	2	2	7	1	1	0	0	**47**
1820	21	2	1	7	1	7	8	7	0	0	0	**54**
1821	12	3	2	2	7	2	5	5	4	0	1	**43**
1822	17	4	2	2	3	5	4	4	2	0	2	**45**
1823	16	3	3	1	5	5	7	1	1	0	2	**44**
1824	12	1	3	1	3	6	7	3	1	0	0	**37**
1825	44	10	3	1	2	7	3	1	1	1	1	**74**
1826	23	1	4	2	2	7	5	5	3	0	2	**54**
1827	12	0	2	1	3	2	7	3	2	0	0	**32**
1828	21	5	2	4	4	2	7	3	0	0	0	**48**
Total	**605**	**95**	**70**	**72**	**117**	**141**	**163**	**109**	**33**	**5**	**52**	**1,462**
%	43%	7%	5%	5%	8%	10%	12%	8%	2%	0%		

The data describes a pattern that had persisted for thousands of years before the development of modern sanitation in the later nineteenth century, which did far more to end premature death than the development of antibiotics in the middle of the twentieth century. The fragility of life is obvious:

- 50% of all deaths occurred before the age of 20. In other words, the chances of surviving childhood and adolescence were a flip of the coin. The vast majority of these deaths occurred well before the age of 10.
- The chance of dying as a young or middle-aged adult (based on nineteenth-century definitions, not ours), that is, between ages 20 and 49, were about 1 in 6.
- The odds of reaching your fiftieth birthday–older adults by the standards of that time–were just under 1 in 3, with only 1 in 10 living to the age of 70.
- The oldest recorded death was age 101, the only centenarian out of more than 1,400 deaths between 1799 and 1828.[8]

Charts 10 and 11 (next page) graph this pattern.

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[8] We have located the birth record for this centenarian and–in this case–have evidence that the recorded age is correct.

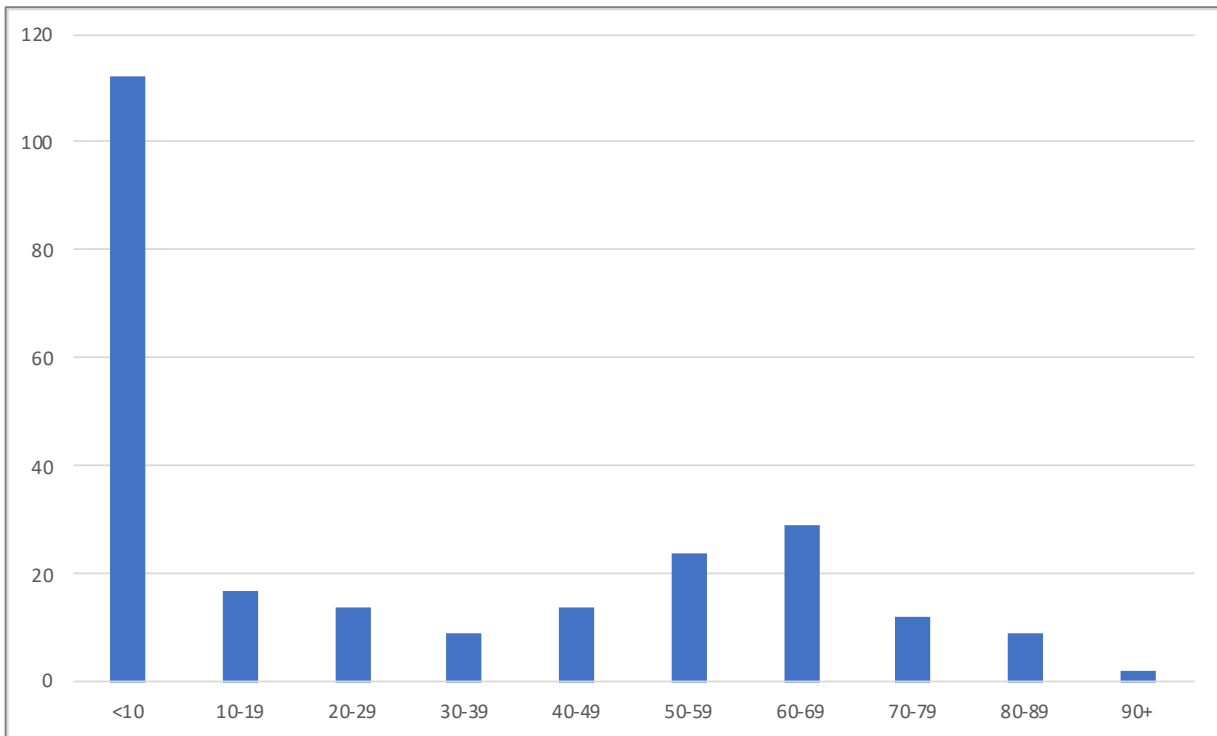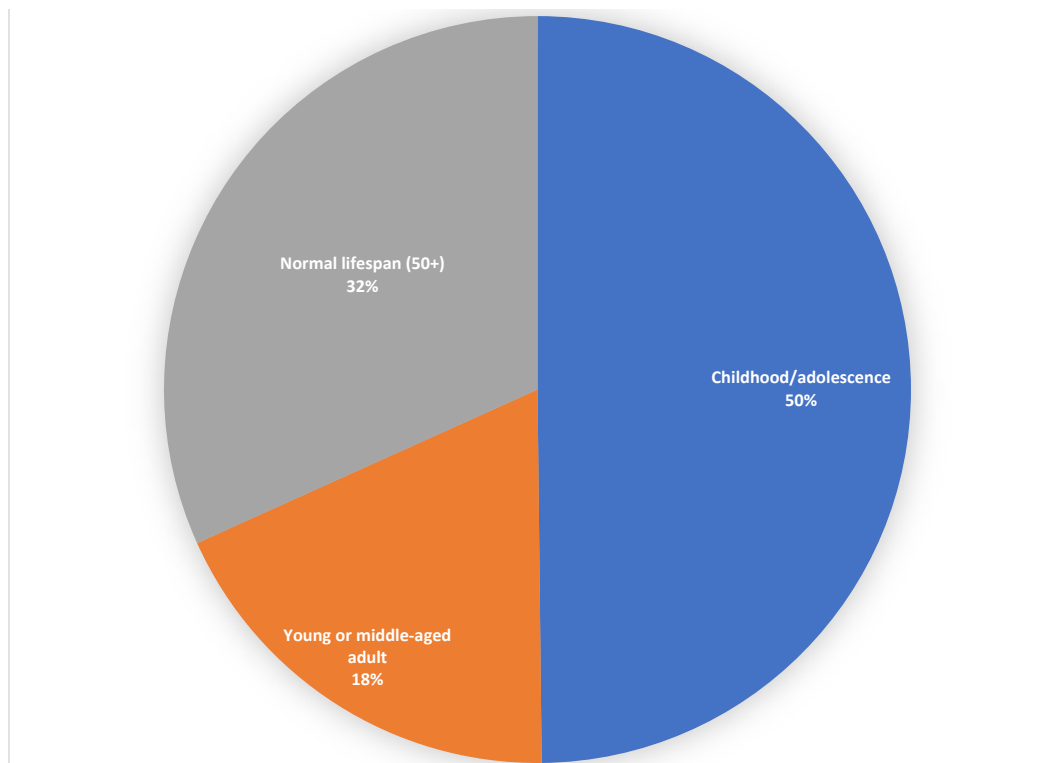**CHART 10: TOTAL DEATHS BY AGE (DECILES)**

**CHART 11: TOTAL DEATHS BY AGE GROUP**

The table below and graph on the following page demonstrate how precarious life was for the very young. 80% of the under-10 deaths were for children younger than 4. Life was most fragile for newborns; it is heartbreaking to read the actual records, describing so many infant deaths just minutes, hours, or days after birth.

TABLE 7: AGE AT DEATH FOR CHILDREN UNDER 10

Year	age at death										total
	0	1	2	3	4	5	6	7	8	9	
1799	12	1	0	2	1	0	0	0	1	0	**17**
1800	16	3	2	2	0	1	1	0	0	0	**25**
1801	8	0	1	0	3	2	0	0	0	0	**14**
1802	9	5	3	3	0	2	0	0	3	0	**25**
1803	18	2	4	2	2	4	1	0	1	2	**36**
1804	7	0	2	1	0	0	1	0	0	1	**12**
1805	10	1	3	0	1	0	1	0	0	1	**17**
1806	3	2	2	0	1	0	0	1	0	0	**9**
1807	8	7	0	2	0	1	1	0	0	0	**19**
1808	6	2	2	0	2	0	0	1	0	0	**13**
1809	9	5	3	3	0	0	1	1	2	0	**24**
1810	11	5	6	2	2	1	1	2	1	1	**32**
1811	9	4	2	1	0	1	1	1	1	1	**21**
1812	7	1	1	1	0	1	0	0	0	0	**11**
1813	5	4	1	2	1	0	1	1	1	0	**16**
1814	5	2	0	4	0	1	1	0	0	0	**13**
1815	12	5	3	3	1	1	0	1	0	1	**27**
1816	12	6	3	1	2	2	3	0	1	0	**30**
1817	11	1	3	0	1	2	2	1	1	0	**22**
1818	8	1	4	4	1	1	1	2	0	1	**23**
1819	6	0	3	3	3	2	0	3	1	0	**21**
1820	6	4	2	2	2	1	0	3	0	1	**21**
1821	5	4	0	1	0	1	0	1	0	0	**12**
1822	9	2	2	1	1	1	1	0	0	0	**17**
1823	8	1	2	2	1	1	0	1	0	0	**16**
1824	7	1	3	0	0	0	0	0	0	1	**12**
1825	18	5	7	4	4	4	1	0	1	0	**44**
1826	9	2	1	3	4	2	0	1	0	1	**23**
1827	11	0	1	0	0	0	0	0	0	0	**12**
1828	15	1	1	0	1	2	0	0	1	0	**21**
Total	**280**	**77**	**67**	**49**	**34**	**34**	**18**	**20**	**15**	**11**	**605**

CHART 10: DEATH RATE FOR YOUNG CHILDREN
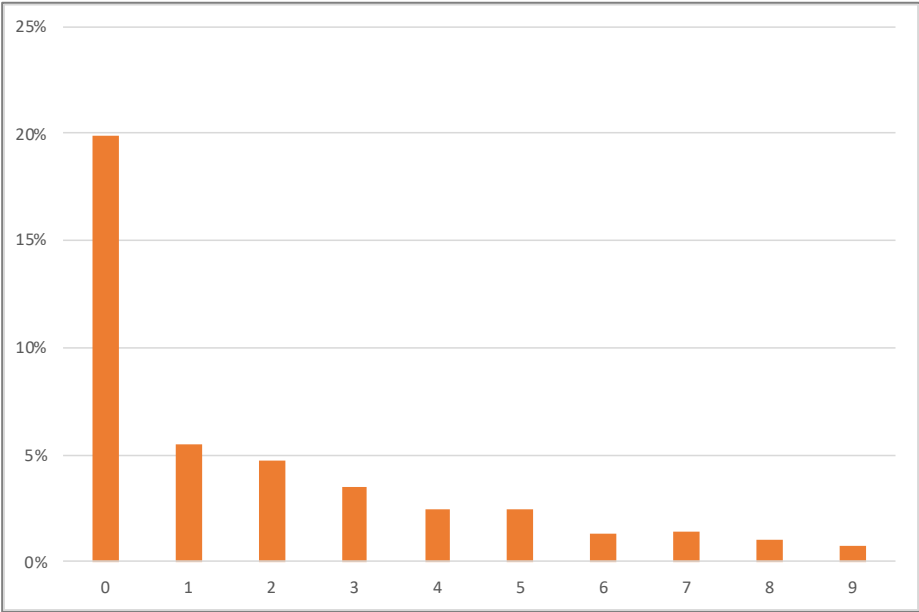
In this chart, the percentages on the vertical axis are the percentage of total deaths during this 30-year time period for each age from 0 to 10. In other words, the deaths of children not yet one year old account for 20% of all recorded deaths (not just deaths of children under 10).

The task of calculating life expectancy is complicated by the surge in the birth rate that occurs in the mid 1820s. That surge in births also generates additional deaths due to the high rate of infant mortality. Therefore, our calculation of life expectancy is based on data from 1799-1823 when birth rates remained constant. During this quarter century, life expectancy at birth was incredibly short, but rose rapidly for children who survived the risk of their early years. The following calculations are based on all records from these years that list the age at death:

- Life expectancy at birth was just 29.6 years.
- Surviving to your fourth birthday increased life expectancy to 43.7 years.
- Life expectancy at age 10–a common measure in addition to life expectancy at birth–was 49.8 years.

In other words, an early nineteenth-century resident of Burg Reuland was lucky to live long enough to see his or her grandchildren.

Finally, using our 1816-1823 data to analyze mortality by gender shows that women had a slightly longer life expectancy than men. Female life expectancy was 1.7 years greater at birth (31.6 years for women versus 29.9 years for men), declining to .8 years at age 10 (50.8 years for women versus 50.0 years for men). The largest driver of this difference was the greater susceptibility infant boys faced of death due to complications in childbirth or infectious disease, a disadvantage that appears to be biological. In Burg Reuland during this time, 42% of boys died before the age of 10 compared with 39% of girls. Because of their greater vulnerability, male births almost universally outnumber female births by several percentage points. For Burg Reuland, that figure was 4% (see page 7).
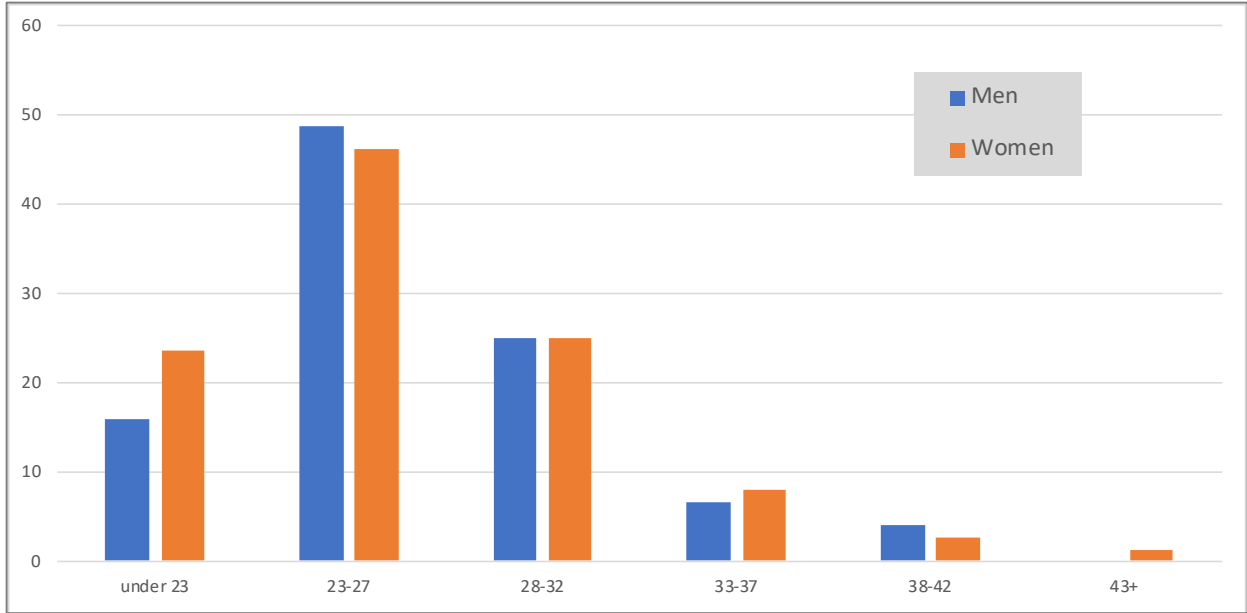
Marriage

The routine inclusion of age at marriage in records after 1815–a consistent practice that starts with record-keeping in the Kingdom of Prussia (which included Burg Reuland) after the end of the Napoleonic occupation–helps us answer many questions about the institution of marriage in that society. Out of 227 marriages, 209 include an age for at least one person, 196 include both persons' age. As a result, we know the following:

- The average age of first marriage for men is 27.7 years with a range from 16 to 58 (only one was younger than 18).
- The average age of first marriage for women is 26.0 years with a range of 15 to 47 (only three are under the age of 18).
- The average age of second marriages for men is 47.1 years with a range of 28 to 74. Note that in this culture which did not permit divorce, it was only widowers and widows that married for a second time.
- The average age of second marriages for women is 36.6 with a range of 25 through 50.

TABLE 8: AGE AT MARRIAGE

	age of first marriage						
	under 23	23-27	28-32	33-37	38-42	43+	Total
Men	31	80	51	16	9	5	192
Percent	16%	42%	27%	8%	5%	3%	
Women	58	71	44	16	5	1	195
Percent	30%	36%	23%	8%	3%	1%	

**CHART 11: DISTRIBUTION OF AGE AT TIME OF FIRST MARRIAGE**

Note: the size of each bar represents the percent of total marriages for each age group

Table 9 (below) and Charts 12-14 (this page and following page), which display the difference in ages between the two partners, document wide variation in social conventions.

TABLE 9: DIFFERENCE IN AGES AT MARRIAGE

Difference in age	First marriages		Second marriages	
Husband younger by 16-20 years	3	2%	1	3%
Husband younger by 10-15 years	9	5%	3	8%
Husband younger by 4-9 years	30	17%	6	15%
Husband within 3 years of wife's age	60	34%	8	20%
Husband older by 4-9 years	46	26%	4	10%
Husband older by 10-15 years	20	11%	6	15%
Husband older by 16-20 years	7	4%	4	10%
Husband older by 21 or more years	2	1%	8	20%
Total:	**177**	**100%**	**40**	**100%**

CHART 12: DIFFERENCE IN AGE (FIRST MARRIAGES)
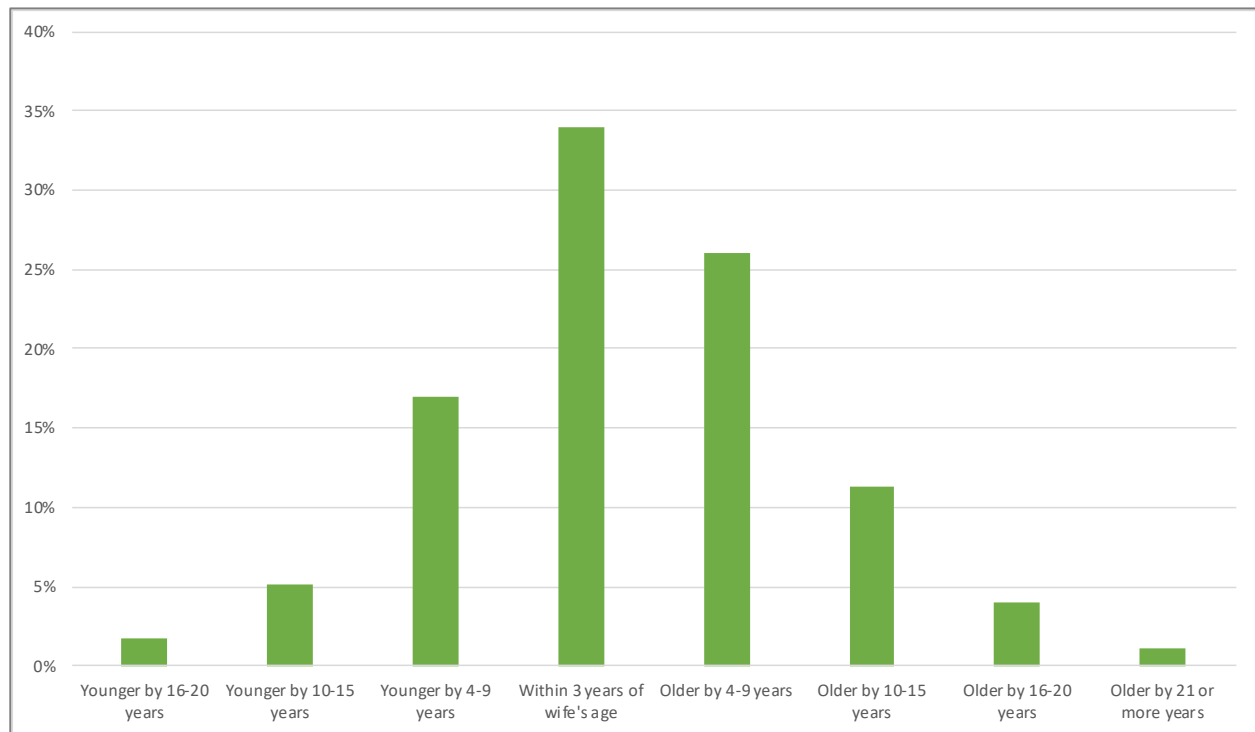
Note: both charts on this page are based on the husband's age relative to his wife's age.

**CHART 13: DIFFERENCE IN AGE (SECOND MARRIAGES)**
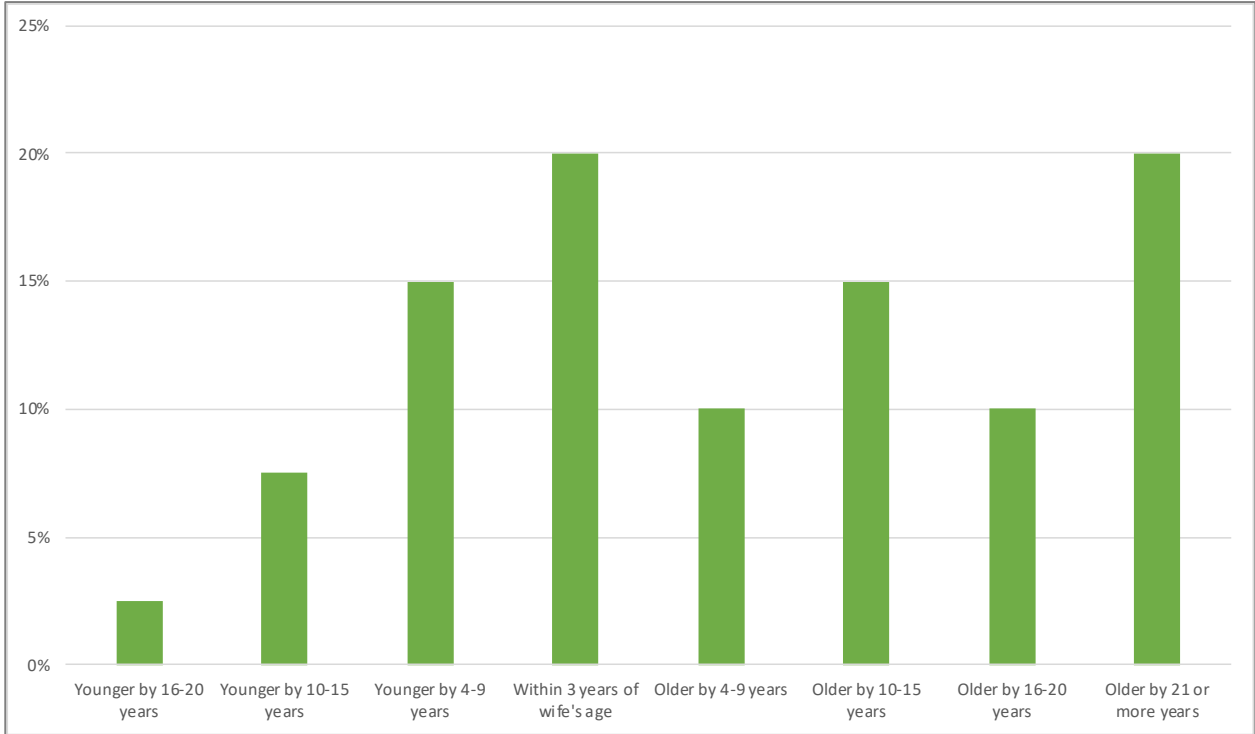
The box chart on the right illustrates the distribution of difference between ages of spouses at first marriage and second marriage, with second marriages broken down by who is remarrying–the pattern for widowers is different than the pattern for widows.

For first marriages, the average difference in age is about 2 years. The height of the bar shows that in half the cases, the difference in age is not great. The average difference jumps to 10 years (husbands older than wives) when widowers remarry, with a wider range of age differences.

Perhaps the most noteworthy data in this view is what happens when widows remarry. On average, they are two-thirds of a year younger than their spouse (.67 years). But the median is much lower, as illustrated by the gray bar– namely wives are 4.5 years *older* than their spouse. More than half the time, widows marry younger rather than older men.

CHART 14: DIFFERENCE IN MARITAL AGE
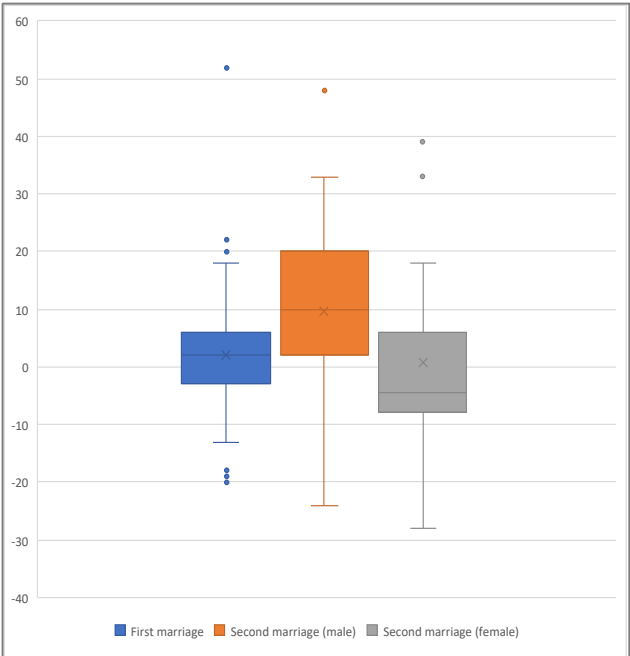
Each bar represents the difference in age between the husband and the wife

The data supports a series of generalizations about social customs related to marriage at this time:

1. The most common age for first marriages was the mid-twenties (men and for women).
2. Most first marriages were between men and women who were approximately the same age. In the case of second marriages, men tend to be substantially older than their wives. However, there was a tremendous range of differences, and large differences in age were not rare.
3. Widowed men didn't appear to face barriers to remarriage regardless of age.
4. Only younger and middle-aged widowed women had the opportunity to remarry. In this time period, there are no second marriages for women past the age of 50.
5. There are a handful of examples of marriages between young women and old men which were likely arranged so that younger women could take care of aging men. In the most extreme example in these records, a 22-year-old woman married a 74-year-old widower.
6. Marriage to a partner from outside the Burg Reuland administrative district was common. In about half the cases, spouses came from outside the Burg Reuland administrative district.

Because there are just 19 second marriages during this time period, it is risky to describe prevailing patterns. Nonetheless, two patterns seem to emerge:

- when a man or woman is widowed at a young age (e.g., late twenties or early thirties), the second marriage is likely to be to an age peer
- when a man or woman is widowed at a later age, marriage to a non-peer is common. Interestingly, in addition to older men marrying much younger women, there are a number of example of men in their twenties marrying widows 15-20 years older.

Finally, the data reflects a strong preference for marrying at the beginning of the calendar year, during the heart of winter. The chart below shows the distribution of marriages by month.

CHART 15: DISTRIBUTION OF MARRIAGES BY MONTH
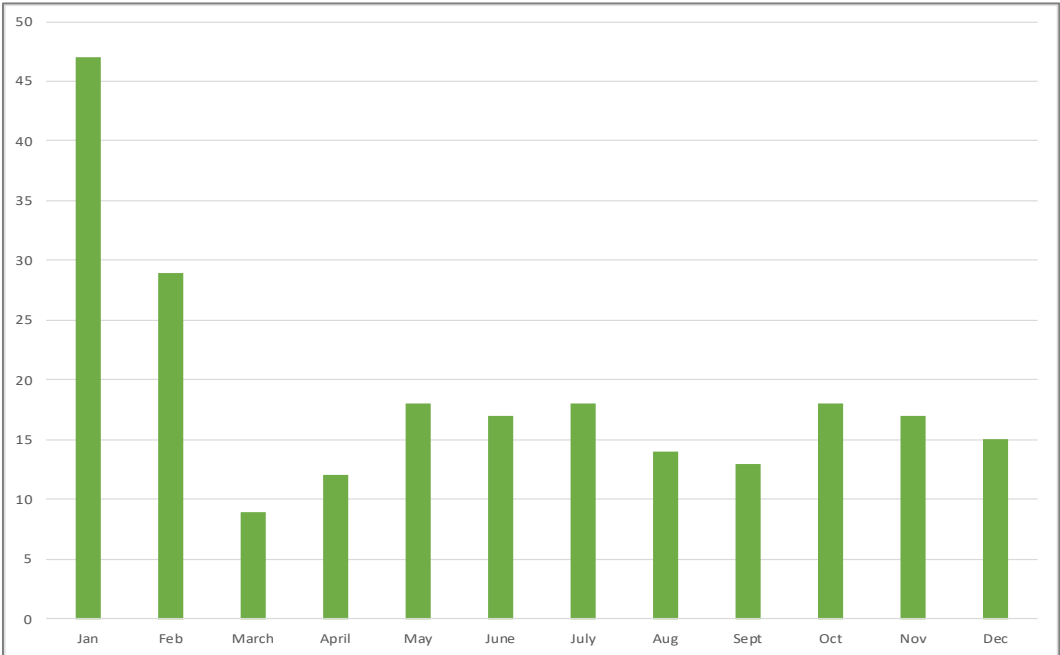
Just over a fifth of all marriages took place during the month of January, a third during the combined months of January and February. There are two likely reasons for this preference:

- Then as now, the pace of work in agricultural communities slowed significantly during the winter, making this a natural time for celebrating marriages and starting new families.
- The Catholic Church discouraged marriages during the liturgical season of Lent, a seven-week period which would fall sometime between mid-February and mid-April (note how few marriages occur during the month of March).