

FAIRS, FESTIVALS AND FERTILITY IN ALKMAAR, NORTH HOLLAND, 1650-1810

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Introduction

The study of the seasonal trends of vital statistics in pre-contraception societies can shed light on the behaviour of such societies. This is especially true of seasonal fluctuations in baptisms, as these not only provide evidence of sexual activity in the past but also of the dual nature of sexuality in man, with its double function of pleasure and reproduction.

Humans are the only animals not to have a chemically dictated mating cycle but to mate on impulse: an impulse, which is, however, influenced by social and physiological factors. A modern example of this can be seen in the peak of conceptions on English Bank Holidays.¹ Increased leisure results in a population more inclined towards pleasurable activities, with a more relaxed atmosphere increasing sexual awareness and heightening sexual activity. The same phenomena would appear to have influenced the timing of conceptions in pre-contraception societies with fairs and festivals leading to a peak in births nine months later. Dyer² suggests that Christmas and Shrove Tuesday produced the most recognizable peaks although conceptions generally were highest from April to July. Vandenbroek³ sees May with its fairs and festivals as being the most fertile period in pre-industrial Flanders. Alkmaar and its neighbourhood in North Holland however had fairs and holidays in the latter part of the year. The purpose of this article is to see what effect these had on the conception level and whether or not any difference can be observed between these and other societies where festivals fell in the early part of the year.

High days and holidays in Alkmaar can be divided into three types. There were a number of local fairs. These were the Fair Week at the end of August or beginning of September; Alkmaar-Onzet held on 8th October, a celebration of the expulsion of the Spaniards and lifting of the siege of Alkmaar; and the St Martin's Eve festival of light and gifts celebrated on 11 November. There were also two national fairs; the statutory fair held on 3 May and the St Nicholas Eve fair, a feast of gifts and merrymaking held on 5 December. In addition five international festivals must be included. These were Drie Koningen 6 January; Shrove Tuesday, a celebration to mark the beginning of Lent which was moveable but always falling between the second week of February and the second week of March; May Day; St John's Eve or Midsummer celebrated on 24 June and Christmas. Christmas was and is not so important as a secular holiday in Holland as it is in England, but in the past 6 January was a holiday devoted to visiting neighbours and general merrymaking. The fairs and festivals in May

and June are associated with fertility festivals across Europe, and St John's wort, the plant associated with 24 June, was considered to be aphrodisiac. The custom in Holland on May Day was for the young men to wake the young women early and inveigle them outside by making a noise outside their windows.⁴ This tradition has survived in a diluted form but has shifted to Whit Sunday (Luilakdag or lazybones day) when children go round the streets early to wake up lazybones. Table 1 shows the feast date and possible related birth/baptism peak with a gestation period of thirty-eight weeks.

Table 1. Alkmaar fairs and festivals

Feast	Date	Possible birth peak
Drie Koningen	6 January	September period 4
Shrove Tuesday	Feb. week 2 - March week 2	October period 4 - Nov. period 4
May Day	1 May	January periods 3 and 4
May Fair	3 May	January periods 3 and 4
Midsummer/St John's Eve	24 June	March periods 3 and 4
Fair Week	30 August - 3 September	May periods 2 and 4
Alkmaar Onzet	8 October	July periods 1 and 2
St Martin's Eve	11 November	August periods 1 and 2
St Nicholas Eve	5 December	August period 4
Christmas	25 December	September period 3

Location and Sources

The location of this study is Alkmaar in North Holland and some of its nearby settlements. Alkmaar lies thirty-eight kilometres north of Amsterdam. In the seventeenth century it was a walled town almost totally surrounded by water. The population in 1622 was around 12,417 and had fallen to circa 8,373 by 1795.⁵ The land to the north was reclaimed from the sea in 1630 with Heerhugowaard a new settlement in the middle of the polder, and Oudorp and Ursem older settlements lying to the east and west of the new land. Egmond-aan-Zee lies to the west of the dune line. It had a fishing fleet of thirty-eight vessels in 1750. Bergen lies on the eastern foot of the dunes. Alkmaar provided the central focus for the region, providing a range of services, most notably its cheese market, famous since the fourteenth century. The agriculture of the area was mainly pastoral with dairy produce the area's most important industry. Alkmaar was also famous for its religious toleration. Table 2 shows the church congregations returned in the religious census of 1809.⁶

None of the settlements was a single religion community though Egmond-aan-Zee had a strong bias towards Old Catholics with 62.7 per cent of the population belonging to that denomination.⁷ In the case of the outlying settlements the smallness of the sample made it necessary to combine the denominations, also in Alkmaar it was necessary to amalgamate the Lutheran and Remonstranse registers. Nothing is available for the Jewish and Mennonite congregations.

Table 2. Alkmaar church congregations in 1809

Denomination	% of population
Reformed Church	53.0
Roman Catholic	37.1
Lutheran	6.1
Mennonite	1.8
Jewish	1.1
Remonstranse	0.9

A problem which besets all studies of conceptional seasonality is the gap between birth and baptism. Some registers give birth and baptismal dates throughout and all do so from the mid-eighteenth century. The trend in the birth-baptism interval is similar to that in England: a delay of a few days in the early period but increasing considerably towards the end of the eighteenth century. If the baptismal candidate is not a baby this is noted in the register. Where no birth date is given in the early part of the study it has been allocated to the period in which the baptism falls. The switch from the Julian to the Gregorian calendar took place in the late sixteenth century in Holland. All dates given in the paper are therefore in accordance with the latter and so conform to present day practice. In order to facilitate data collection each month was divided into four periods as follows: One = days 1-7, Two = days 8-15, Three = days 16-23, Four = days 24-30/31, each baptism was allocated to one of these four periods as appropriate.

Baptismal peaks and conception

If the feast day stimulated sexual activity this should be recognisable as a peak of baptisms nine months later, but what is a recognisable peak? How far above the mean percentage of births can be seen as indicating increased sexual activity within a specified time rather than the culmination of a general trend of heightened fertility? A known demographic peak is the increased level of births in the immediate post war years of 1946-7. Table 3 shows the number of births per year for Alkmaar for the decade 1942-51. The 1946 peak for the frequency of births is equal to the mean number of births for the decade, plus the standard deviation (S.D.) from the mean of the frequency distribution, plus 70 per cent of the standard deviation. For the percentage of births in the decade the 1946 peak represents the mean percentage distribution plus the standard deviation from the mean and a further 69.4 per cent of the standard deviation. As a rough guide therefore, based on local experience (the 1946 peak at Alkmaar was probably lower than a similar town in Britain because of the 'hungry winter' of 1945) I shall define a peak of births in this study as being:

$$P = \text{mean} + 1.7 (\text{S.D.})$$

The mean being a constant 2.08 per cent, with the year divided into forty-eight periods.

Table 3. Births in Alkmaar 1942-1951

Date	Number of births	% of decadal births
1942	741	8.24
1943	794	8.83
1944	944	10.50
1945	822	9.14
1946	1079	12.00
1947	1048	11.66
1948	913	10.15
1949	893	9.93
1950	907	10.00
1951	846	9.41
Total	8987	100
Mean	898.7	10
Standard Deviation from Mean	106.8	1.18

Figure 1 shows the period percentage of the aggregate baptisms from 1650-1809. It shows that the above average peaks for both urban and rural settlements taken together lie in the months January-April or from the end of August-October, and the end of December, i.e. conceptions are highest April-July, and December-February. Are these apparent peaks actual peaks as defined above? Table 4 isolates the peaks and shows those periods above or below the standard deviation. (Values of S.D.s and peaks are shown in the appendix). In 384 entries there are twenty-three peaks, i.e. 5.97 per cent. Table 5 shows the relationship of the peaks to the festivals in rank order.

As can be seen those peaks are not related specifically to festivals are part of a trend of heightened sexuality that spreads across April-July with the holidays of May Day and St John's Eve marking the high spots. However, October 4 is a more noticeable peak except in the strict Protestant Lutheran and Remonstrance churches at Alkmaar. In the rural settlements October 2-November 2 (i.e. conceptions February-March) shows an upwards trend of baptisms that could be related to pre-Lenten feasting. The October 4 peak could be the result of this as well, but Lent is a moveable feast and the October 4 period shows consistently high baptisms throughout. A possible explanation is that it is related to 'Old Lady Day', February 2, which was a pre-Christian feast taken over by the Christians,⁸ marked in Holland by candle-lit processions. It was also the day domestic servants hired themselves out.⁹ The concentration of baptisms in the last period of December could also stem from another pre-Christian ceremony. In Holland this became grafted onto Palm Sunday with processions of 'palm stokken'- rods topped with blossoms or a hen made of dough or fruits, all fertility symbols.¹⁰

The May Day/Fair period, January 4, shows peaks of above the standard deviation for six out of the eight communities, and midsummer conceptions,

Figure 1 Distribution of births over year: proportion accounted for by each period

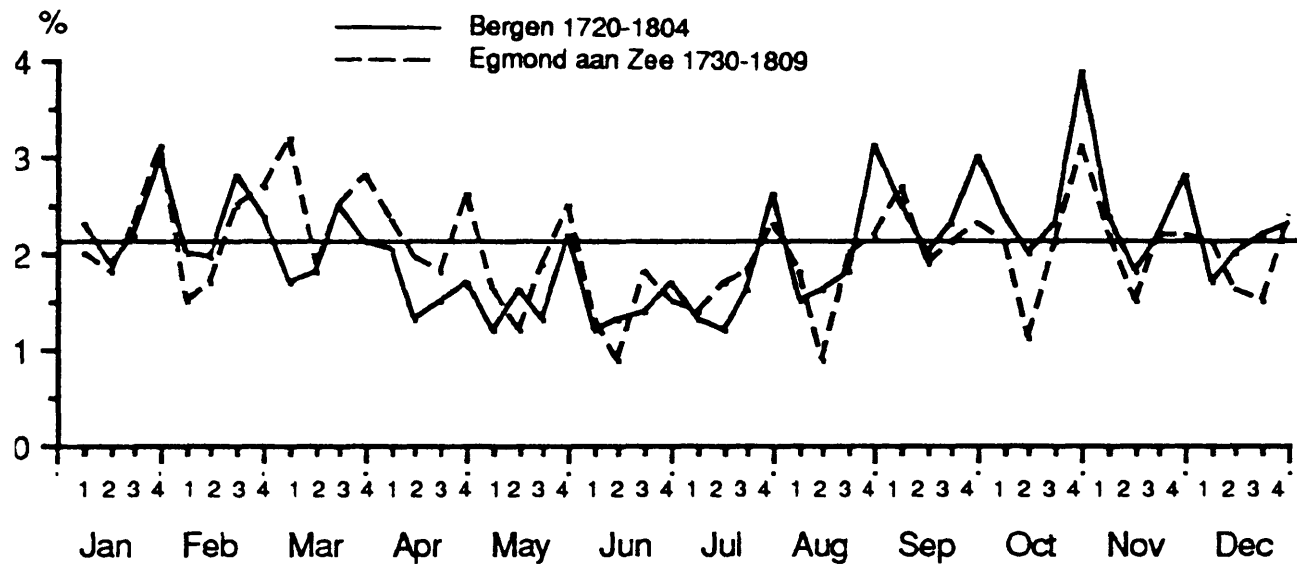
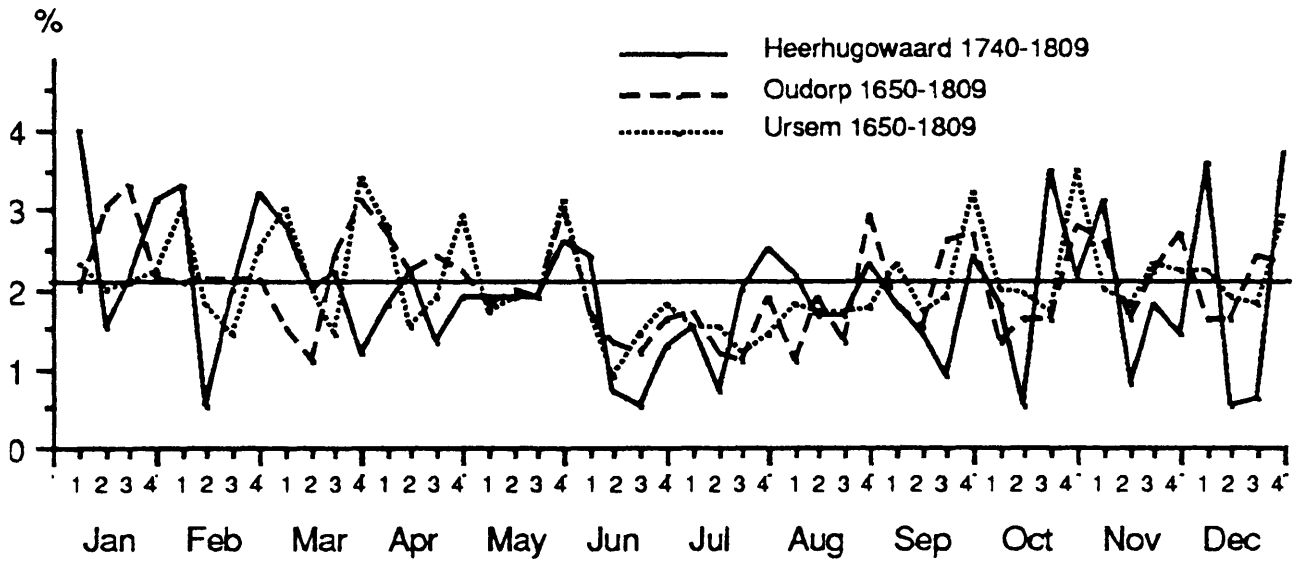
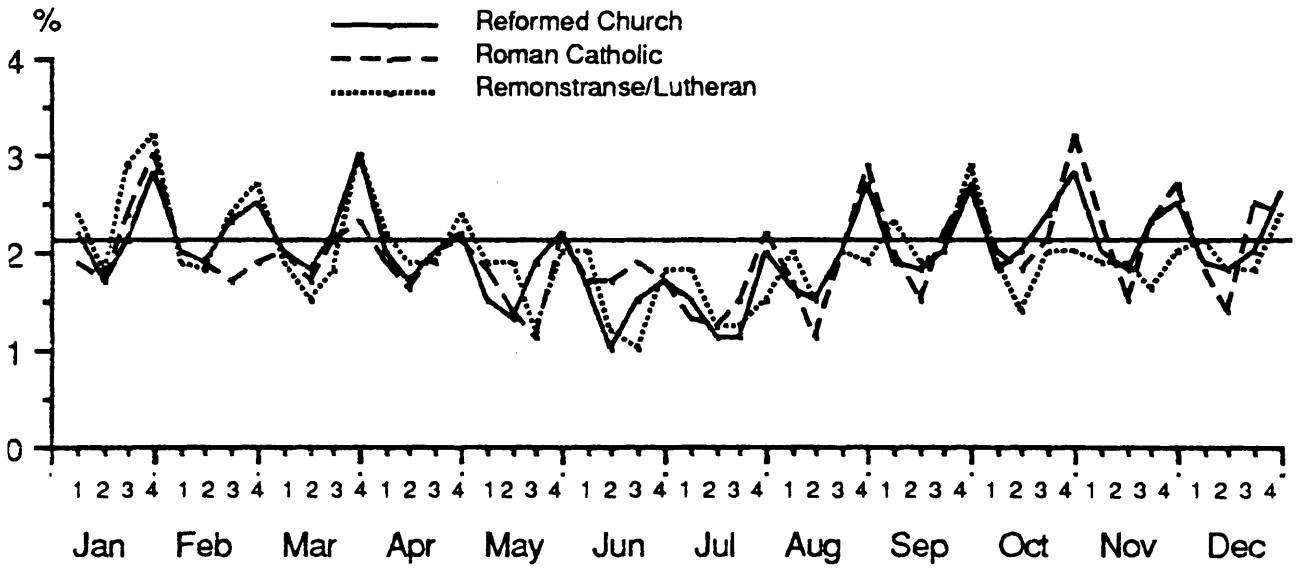


Table 4. Baptismal period

	A	B	C	D	E	F	G	H
Jan. 1	/	/	/	/	/	P	/	/
2	/	/	/	/	/	/	+	/
3	/	/	/	/	/	/	P	/
4	P	P	P	P	+	+	/	/
Feb. 1	/	/	/	/	/	+	/	+
2	/	/	/	/	/	-	/	/
3	/	/	/	/	+	/	/	/
4	/	/	/	+	/	/	/	+
Mar. 1	/	/	/	P	/	/	-	+
2	/	/	/	/	/	/	/	/
3	/	/	/	/	/	/	+	/
4	P	P	P	+	/	/	/	P
Apr. 1	/	/	/	/	-	P	/	/
2	/	/	/	/	-	/	/	/
3	/	/	/	/	/	/	/	/
4	/	/	+	+	-	/	/	+
May 1	-	/	/	/	/	/	/	/
2	/	-	/	-	-	/	/	/
3	/	/	-	/	/	/	+	/
4	/	/	/	/	-	/	/	P
Jun. 1	-	/	/	-	-	/	-	-
2	-	-	-	-	-	-	-	-
3	/	/	-	/	/	-	-	/
4	-	/	/	/	-	/	/	/
Jul. 1	-	-	/	-	-	/	/	/
2	-	-	-	/	/	-	-	-
3	/	/	-	/	+	-	-	/
4	/	/	/	/	/	/	/	/
Aug. 1	-	/	/	/	/	/	-	-
2	/	-	/	-	/	/	+	/
3	/	/	/	/	/	/	/	/
4	/	P	/	/	P	/	/	/
Sep. 1	/	/	/	+	/	/	/	/
2	/	-	/	/	/	/	/	/
3	/	/	/	/	/	/	-	-
4	+	+	P	/	+	/	/	P
Oct. 1	/	/	/	/	/	/	/	/
2	/	/	-	/	-	-	+	/
3	/	/	/	/	/	+	/	/
4	P	P	/	P	P	/	/	P
Nov. 1	/	/	/	/	/	/	/	/
2	/	/	/	/	/	-	/	/
3	/	/	/	/	/	/	/	/
4	+	+	/	/	+	/	/	/
Dec. 1	/	/	/	/	/	+	/	/
2	/	/	/	/	/	-	/	/
3	/	+	/	/	/	-	/	/
4	+	/	/	/	/	+	P	+

- Notes:**
- = below S.D.
 - / = within S.D.
 - + = above S.D. but not a peak
 - P = peak
 - A = Alkmaar: Reformed church
 - B = Alkmaar: Roman Catholic
 - C = Alkmaar: Lutheran and Remonstrance
 - D = Bergen
 - E = Egmond-aan-Zee
 - F = Heerhugowaard
 - G = Oudorp
 - H = Ursem

periods March 3 and 4 shows peaks in both urban and rural communities. The peaks that might be associated with January 6 feasting (September period 4) are concentrated in the close-knit communities. As the feast consisted of visiting neighbours this would have been much more difficult in a scattered community in winter. On the other hand the rural communities show a higher baptismal rate for conceptions that took place around the September Fair days, even though the fair is held in Alkmaar. There is a modern parallel for this as the fair is preceded by an agricultural show in the town centre which attracts the farming community to the town in great numbers.

Table 5. Relationship of peaks to Alkmaar fairs and festivals rank order

Baptismal period	Possible related feast*	Number of peaks	Number over S.D.
Jan. 3 & 4	May Day and Fair*	5	2
Mar. 3 & 4	Midsummer/St John*	4	2
Oct. 4	Shrove Tuesday*	4	
Sep. 4	January 6*	2	2
Aug. 4	St Nicholas*	2	
Dec. 4	First week April	1	3
Nov.	Shrove Tuesday*	1	3
Mar. 1	Second week July	1	1
May 4	September Fair*	1	1
Jan. 1	Second week April	1	
Apr. 1	First week July	1	

* Total per cent of peaks related to feasts = 82.60 %

The different religious denominations show a remarkable uniformity with two exceptions. First, the two peaks associated with early December conceptions, St Nicholas, are in the Roman Catholic church at Alkmaar and at Egmond-aan-Zee with its bias to Old Catholic. Second, there is a fall-off of baptisms at the end of the year in the Lutheran and Remonstrance congregation which suggests that either they eschewed pre-Lenten festivity or practised a stricter observance of Lenten self-denial than was the case in other churches. With regard to Christmas, all churches show an upward movement at the end of September and it is difficult to disentangle the Christmas conceptions from those of January 6. It is possible however that the lack of peaks in September period 3

reflects the religious as opposed to the social significance of Christmas for the Dutch. The other holiday that might have produced a peak was the local celebration of the expulsion of the Spaniards on October 8. This should have produced a baptismal peak in July periods 1-2, but appears to have had no effect whatsoever.

To sum up so far: the peaks associated with May Day and mid-summer are part of a trend of heightened sexuality that started about the first week of April and lasted until mid July. The holidays mark expressions of this trend rather than cause it. At the opposite season of the year, mid-winter, there is another period of heightened sexuality with October period 4 being its most visible manifestation.

Table 6. Kolmogorov - Smirnov one sample test

Church	Value of D
Alkmaar Reformed	7.82 > 0.196
Alkmaar Roman Catholic	3.59 > 0.196
Alkmaar Remonstrance/Lutheran	1.09 > 0.196
Bergen Reformed & Roman Catholic	0.50 > 0.196
Egmond-aan-Zee Reformed & Old Catholic	1.06 > 0.196
Heerhugowaard. Reformed & Roman Catholic	0.20 > 0.196
Oudorp Reformed & Roman Catholic	0.24 > 0.196
Ursem Reformed & Roman Catholic	0.28 > 0.196

It is possible, however, that there is a random distribution of peaks. Table 6 shows the result of the Kolmogorov-Smirnov one sample test on the data. From this one can conclude that there is little possibility of the figures being produced randomly nor could the observed concentration of conceptions in May-July have occurred by chance. If public holidays heightened sexual activity, were there any other factors that might have had the same effect? First, hours of darkness and work patterns appear to have had no effect on conceptions. May-July not only had the longest day-light hours and therefore the longest working days but it also had the highest level of conceptions. It could be that the warmer weather encouraged sexuality, but the opposite time of the year, mid-winter, when days and working hours were short, also produced a high level of conceptions. Second, a common factor between the two seasons of peak sexual activity could be the food supply. Food was plentiful in mid-summer and at the mid-winter feasts. De Castro¹¹ suggests, however, that it is not just the quantity but the type of food that is important, a high protein diet being more conducive to fertility. Both dairy produce in mid-summer and the meat based feasts of mid-winter were protein rich. This raises several points. Firstly in winter it was the existence of the feasts that generated the food supply with scarce resources being saved up for the holiday. If nutrition is a factor in causing the heightened fertility of mid-winter then the feast may have helped to cause this. Conversely both the English¹² and Dutch material show that the Lenten season of self-denial and lack of meat had little effect on the birth rate. On the contrary both countries show a slump of births in June and July, i.e. a shortfall of conceptions in September-October, just after

Table 7. Periods with below standard deviation births, in rank order

Birth period	Conception period	Number of churches below S.D.
June 2	Sept. 3	8
July 2	Oct. 3 & 4	6
June 1	Sept. 2	5
July 1	Oct. 2	4
May 2	Aug. 3-4	3
June 3	Sept. 4	3
July 3	Oct. 4	3
Aug. 1	Nov. 2-3	3
Oct. 2	Jan. 3	3
June 4	Oct. 1	2
Sept. 3	Dec. 4	2
Aug. 2	Nov. 1	2
Feb. 2	May 3 & 4	1
Mar. 1	June 2	1
Apr. 1 & 2	July 2-3	1
Nov. 2	Feb.3	1
Dec. 2-3	Mar. 2-3	1

the harvest when food would usually be plentiful. Does this justify De Castro's theory in showing that quality rather than quantity was important? Did diet have any effect on seasonal sexuality? This seems unlikely since resources would have been at their lowest in January and February, but the slumps in births are consistently related to the harvest months.

Harvest Slump?

Table 7 shows the distribution of those periods in which the frequency of births falls below the mean minus the standard deviation of the frequency distribution. The table shows that sexuality was generally low from mid-August to mid-November, reaching a nadir in mid-September. Such periods of low baptismal figures are akin to those found by Dyer. He attributes this to a lessening of intercourse consequent on the fatigue brought about by the heavy harvest work-load. However the heaviest work-load in a dairy region is May-June when the hay harvest and cheese-making are at their height. So can the apparent slump in conceptions actually be related to the harvest or is there some other factor? The harvest in Alkmaar was reckoned to be over by the end of August, called in Holland the 'harvest month'.¹³ The September Fair marked the end of the harvest and the winding down of the agricultural year. The festivals in October and November had little effect on the low level of conceptions at this time. The population like the year was exhausted, an exhaustion that could be caused not so much by harvest but by processing the products of harvest e.g. baking for the winter, brewing, laying down meat. (November in Holland is called 'butcher's month').¹⁴ This work would involve women as much as men and might account for the lack of any difference between town and country so far as the level of conceptions was concerned. The original hypothesis however stated that sexuality in man was social and

physiological and I would like to consider the latter briefly. The level of fertility is determined by the frequency of intercourse; the number of fecund women and the number of potent men.¹⁵ In a closed population such as a church congregation there can only be a limited number of women at risk of pregnancy so that a high fertility in the early part of the year will mean fewer women at risk in the later part. The late December/January conception peaks could contain some women whose children contributed to the late September/October birth peaks but whose babies died or were wet-nursed so that they re-entered the population at risk almost immediately.

Furthermore in an agricultural community how much more convenient to have women active and participating in the work-force from May-August rather than just having given birth or being heavily pregnant. It could be that the breeding cycle in man was evolved through the agricultural calendar and that the pagan festivals later incorporated into the Christian calendar were pegged to this need. It would be interesting to examine pre-contraception season birth rates in the southern hemisphere to see if the slumps and peaks there were reversed.

Conclusion

The relationship between festivals and fertility is problematical. As far as sexual behaviour can be assessed from baptismal figures some festivals such as Shrove Tuesday did produce heightened sexual activity, but others, notably those in early and mid-summer were part of a trend of heightened sexuality. The local and civil festivals that took place in the latter part of the year in the Alkmaar area appear to have had little impact on the conception rate. The fertility peaks of April to July together with the troughs from September to November are similar to those observed in English work on seasonality, notably Dyer's, despite differences in the agricultural economy of England and Holland. This raises the question of 'how local is local?' when it comes to something as universal as human sexuality. Is there for instance a trend that can be traced across pre-industrial Europe? What difference did the festivals associated with the Orthodox churches make, or is there a variation between the seasonal patterns of Moorish and Christian Spain? Further cross-religious and cross-cultural studies of demographic seasonality in the past are obviously called for.

Appendix

Church	S.D.	Peak
Alkmaar Reformed	0.4548	2.853+
Alkmaar Roman Catholic	0.4990	2.910+
Alkmaar Rem/Lutheran	0.4850	2.850+
Bergen	0.5600	3.080+
Egmond-aan-Zee	0.6000	3.090+
Heerhugowaard	1.0200	3.770+
Oudorp	0.6860	3.230+
Ursem	0.5900	3.073+

NOTES

1. E. Shorter, **The Making of the Modern Family**, 1975.
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7. Van de Woude, 1962.
8. See Koster et al, 1983.
9. Koster et al, 1983.
10. Koster et al, 1983.
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12. See Dyer, 1979.
13. J. Pelleboer, **Volksweerkunde**, 1976.
14. **Ibid.**
15. H. Leridon, **Human Fertility**, Chicago University Press, 1971.