AN ENQUIRY INTO SEASONALITY IN BAPTISMS, MARRIAGES AND BURIALS

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Part 2. Baptism Seasonality

In the first part of this article (L.P.S. No. 4, page 21) it was suggested that a study of seasonality, that is of the fluctuations in the numbers of baptisms, marriages and burials from month to month within the year, provides useful material not only, as is obvious, for the general demographer, but also for the local historian. It was suggested, as a first hypothesis, that the factors underlying seasonal variations would be of three kinds:

(a) those which were common to the whole nation, or at any rate to large regions and which persisted over considerable periods. These would include church law (such as prohibited periods for marriage), widespread occupational factors (such as the long hours of work in harvest in rural areas) and possibly biological factors associated with the seasons.

(b) more localised factors, but still fairly persistent and not confined to single parishes, such as might be expected to produce significant local variations of a general pattern. Lambing might, for example, have a local effect in sheep-farming districts similar to the more widespread harvest effect, but at a different season. Regional customs, too, would be included here.

(c) very localised and short-term factors, often almost accidental in nature, reflecting happenings in a parish or small region. An example would be that the incumbent habitually spent certain months of the year away from his parish.

The method suggested for the investigation of seasonality in a single parish or group of parishes starts by calculating the decadal totals of baptisms (or marriages, or burials) for each month of the year and expressing the total for each month as a percentage of the total of all baptisms for the decade. These monthly percentages are then exhibited in two series of graphs:

(i) a separate graph for each decade, showing how the baptisms for that decade are distributed through the calendar months.

(ii) a separate graph for each calendar month, showing how the percentage of baptisms attributable to that month varies with the passage of the decades.

The choice of the decade as the time unit was discussed, and also the advantages and disadvantages of aggregating the figures for several neighbouring parishes (to eliminate very local effects) and of using, in addition to the decadal graphs, some graphs for 50-year periods (to eliminate further short-term effects).

The method was then applied to a study of the seasonality of marriage in six Derbyshire and six Nottinghamshire parishes. This article similarly studies baptism seasonality, and it will be followed by a final article on burial seasonality.

When the two series of graphs are drawn for the baptism distributions in the twelve parishes, they suggest a marked seasonal pattern with a peak of baptisms in spring, a summer trough and a second peak, usually smaller, in autumn. This pattern is, as would be expected, modified by local variations. Figure 1 shows how the pattern emerges for WIRKSWORTH.

Averaging parish by parish over 50-year periods, to reduce the short-term variations, the peak of baptisms almost always comes in February, March or April, with March as the most favoured month. The autumn peak comes most frequently in October or November. The summer trough is most often at its deepest in August in the Nottinghamshire parishes, taken separately, and in July in the Derbyshire parishes. Figure 2 shows the distribution in successive 50-year periods for the combined Nottinghamshire parishes.

The variations which disturb the long-term pattern rarely last, in any parish, more than two decades, but they are distinctly more pronounced than were the variations on the general marriage pattern. Figure 3, for example, shows how August, normally a very unpopular month for marriages, shows in OXTON very marked peaks in some decades. Nevertheless, the general pattern persists in the Nottinghamshire parishes throughout the period (1600-1840), and in the Derbyshire parishes until 1750.

In 1750, a striking phenomenon emerges in all the Derbyshire parishes examined - the concentration into one particular month of the year of a very high percentage of the total baptisms for the decade. Figures 4 and 5 show how, in WIRKSWORTH, a September peak of

FIGURE 1

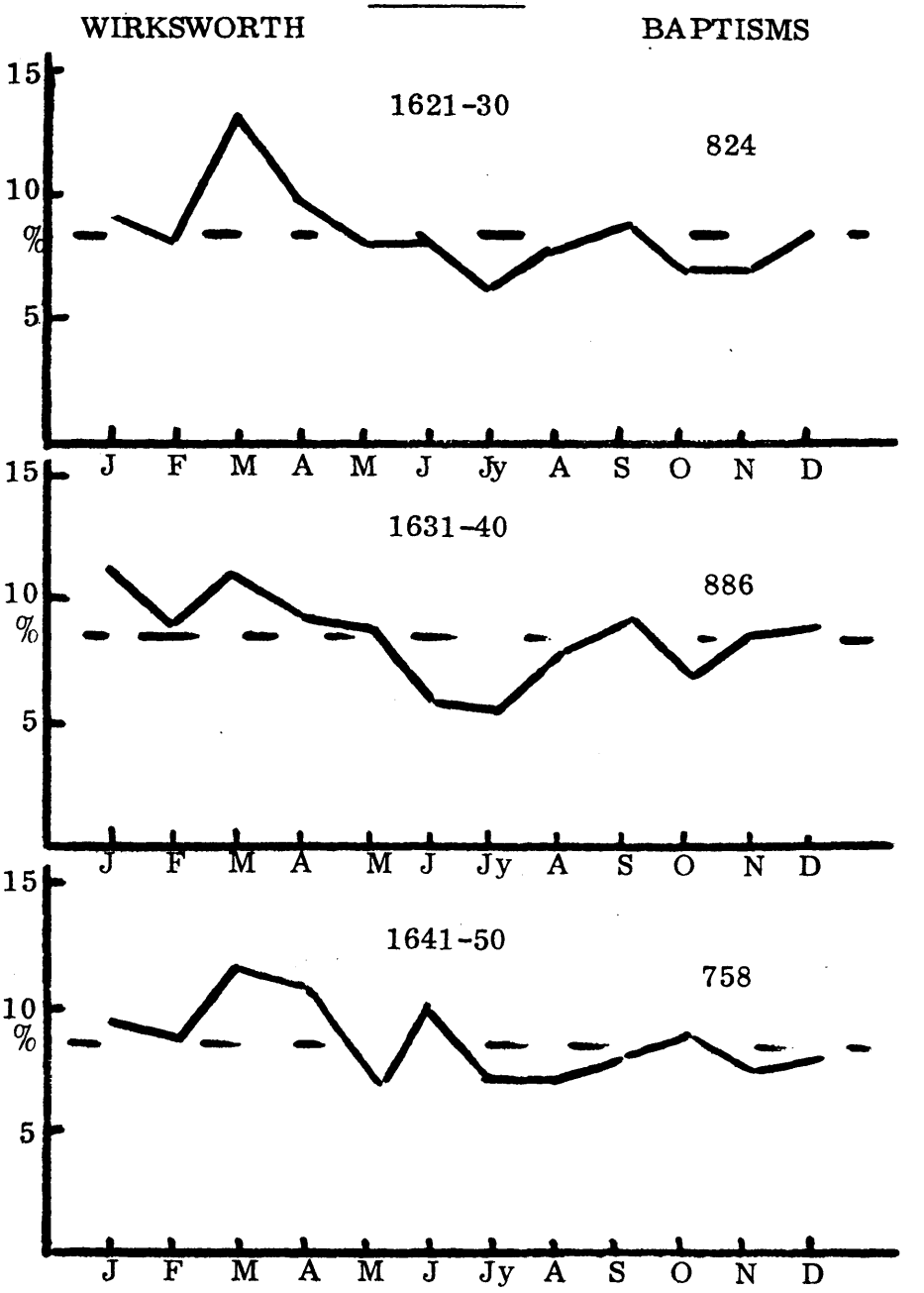

WIRKSWORTH
BAPTISMS
1621-30
824
1631-40
886
1641-50
758
15
10
%
5
J F M A M J Jy A S O N D

FIGURE 1 (continued)

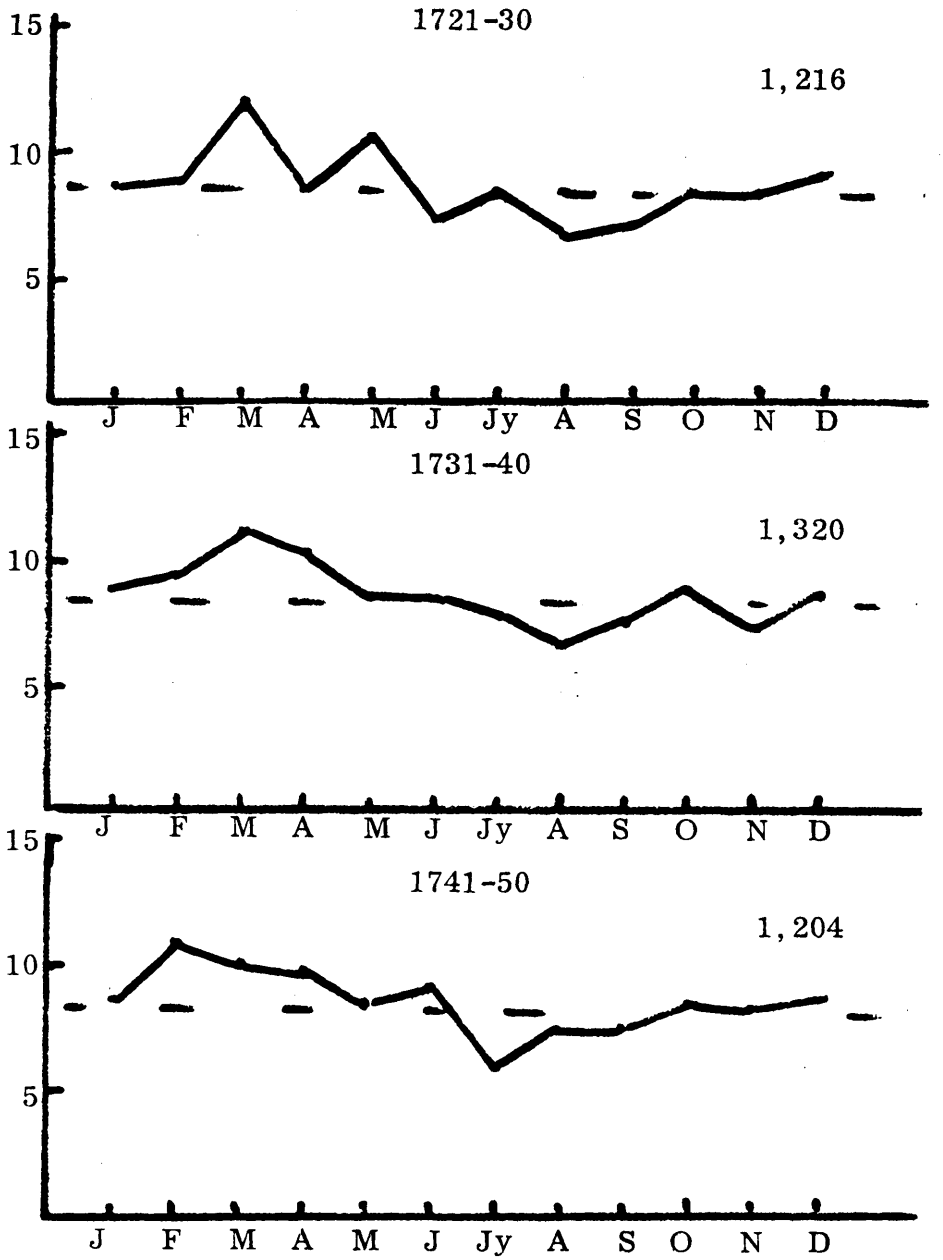


FIGURE 2

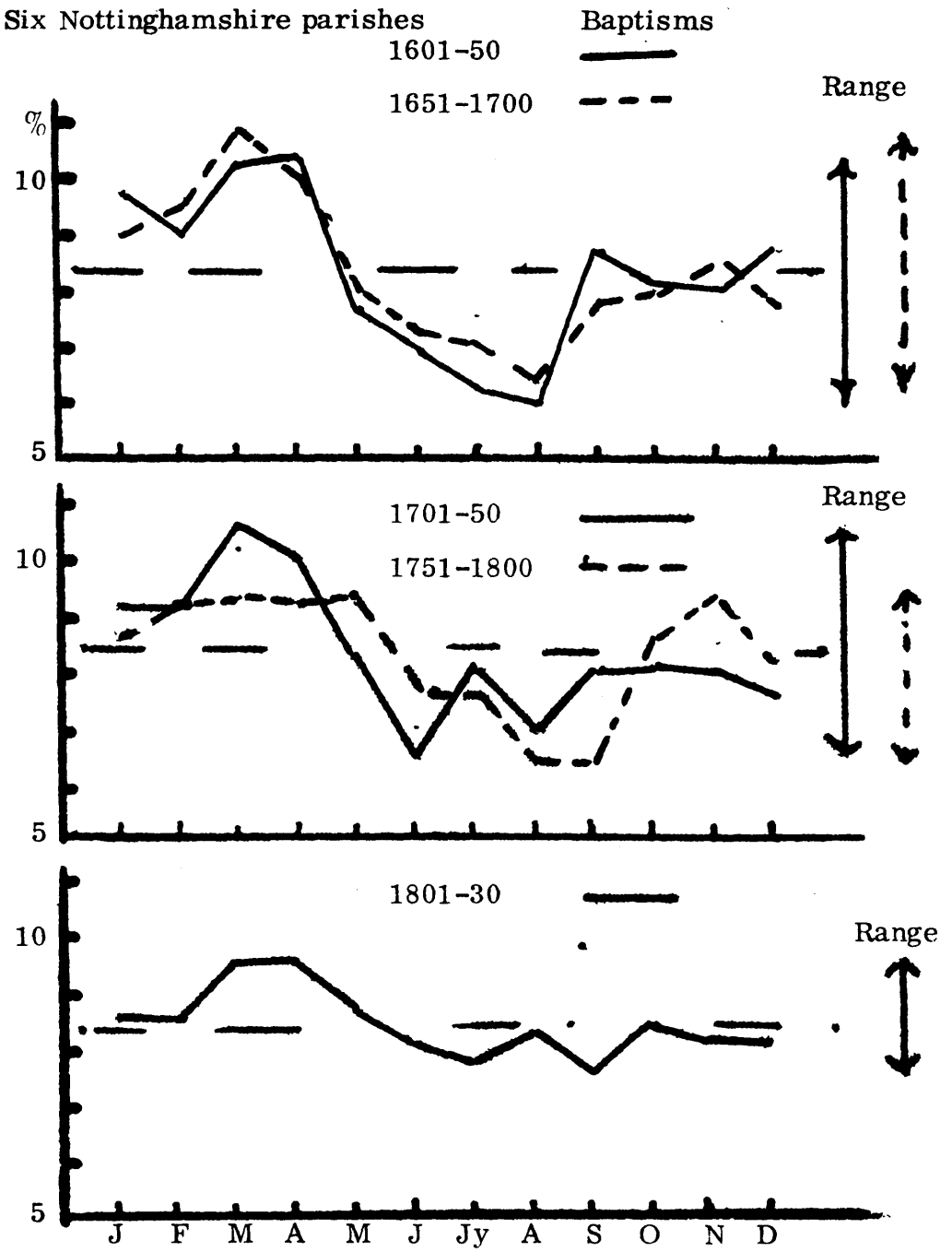

Six Nottinghamshire parishes
Baptisms
1601-50
1651-1700
Range
%
10
5
1701-50
1751-1800
Range
10
5
1801-30
Range
10
5
J F M A M J Jy A S O N D

FIGURE 3

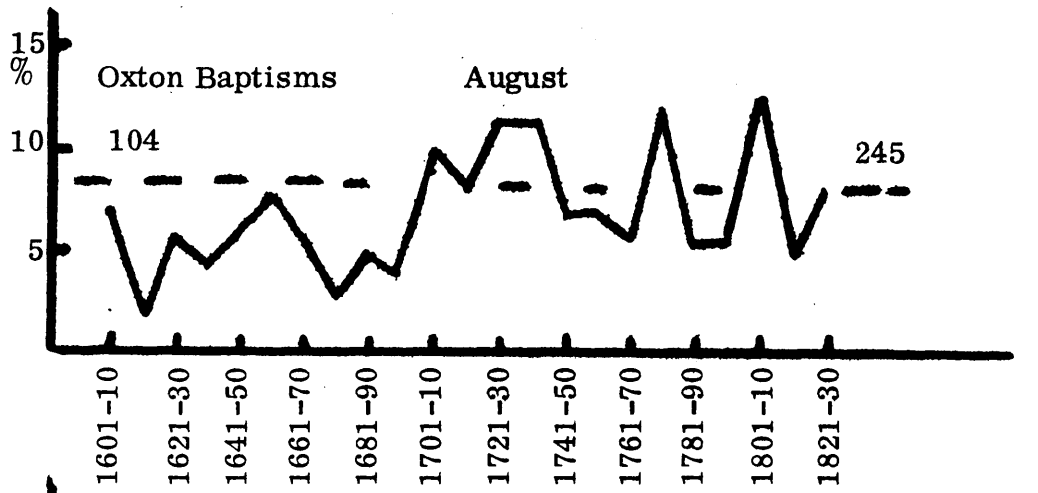
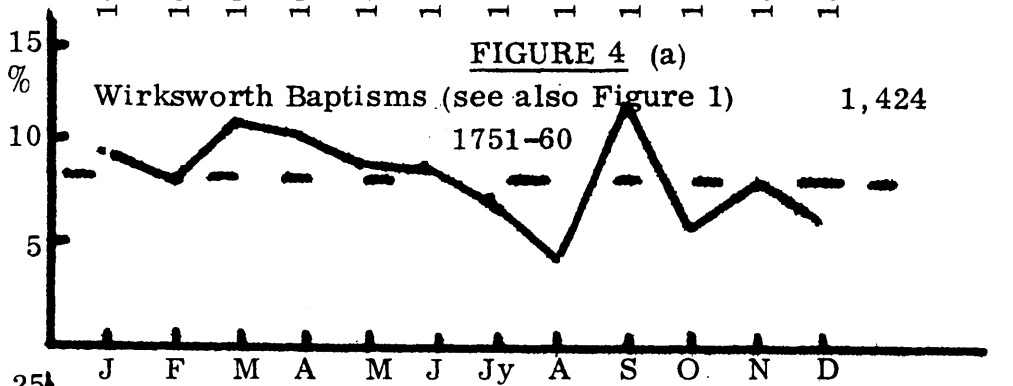


FIGURE 4 (a)



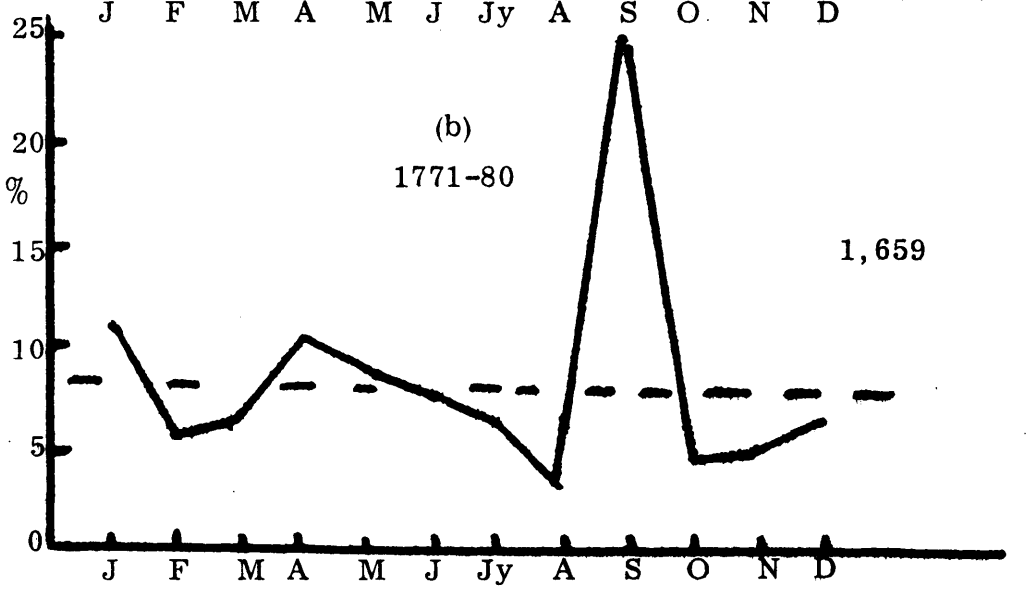


FIGURE 4 ctd. (c) (d)

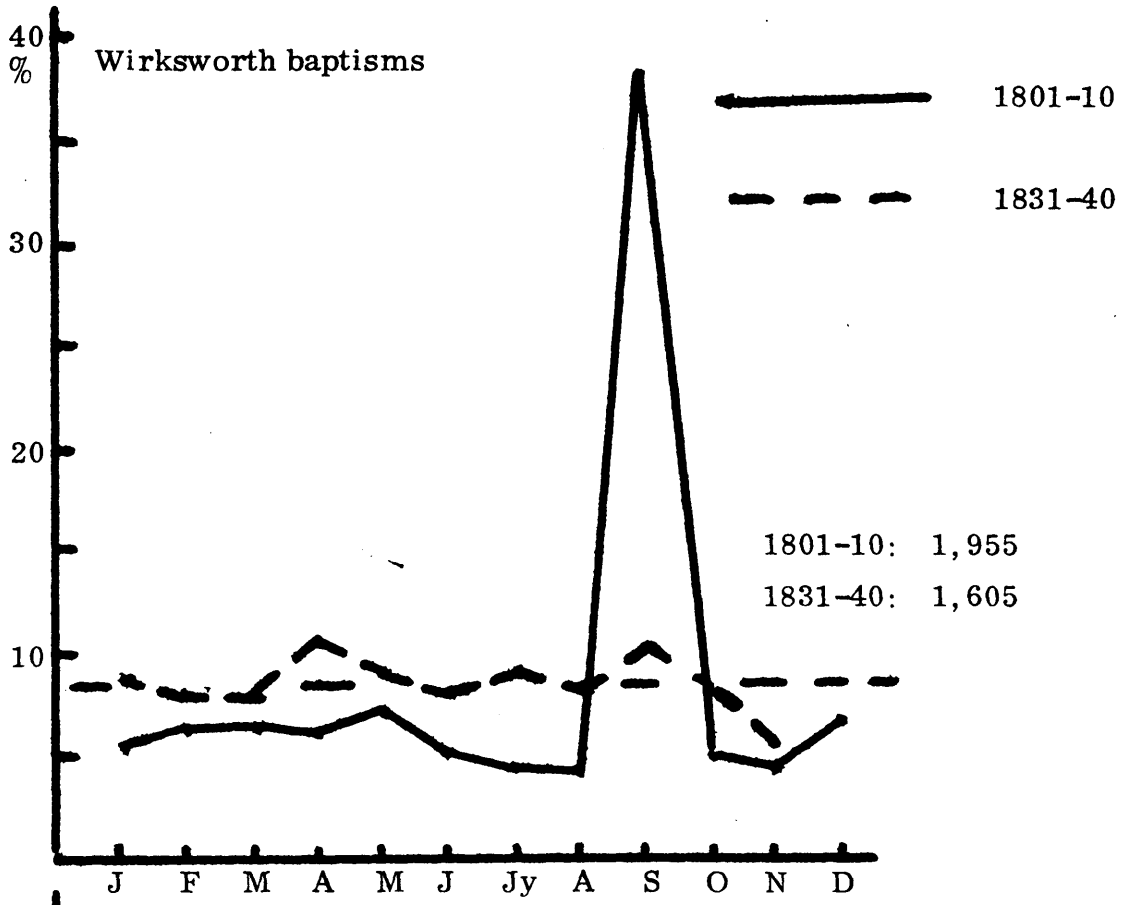
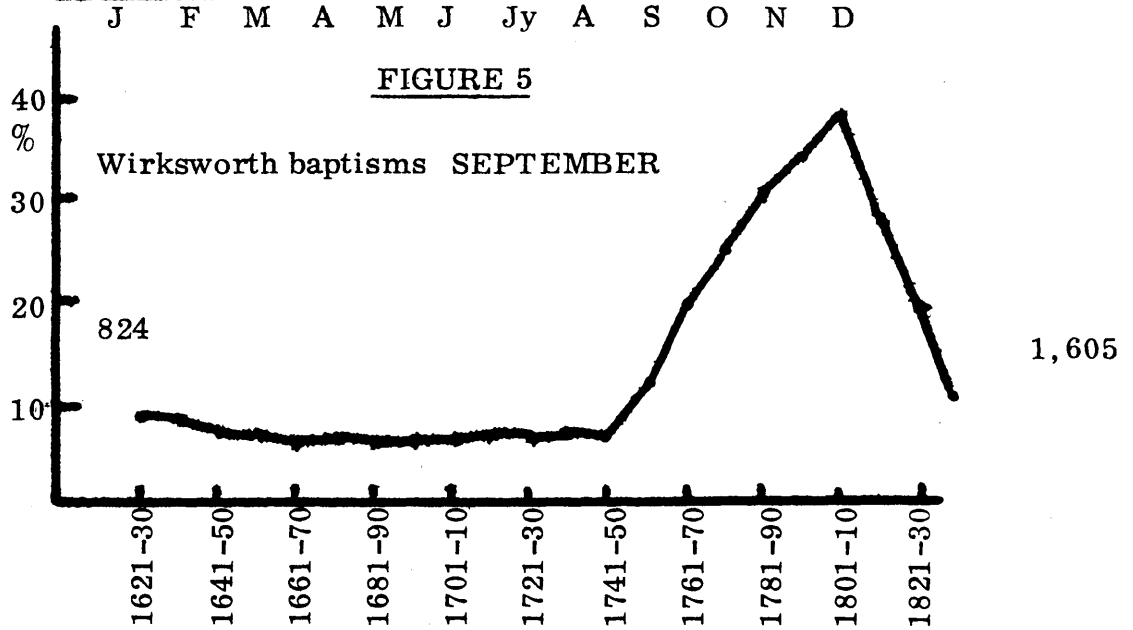


FIGURE 5



baptisms began to appear in 1751-60, rose to a maximum in 1801-10, when it comprised 38% of the decadal baptisms, and then subsided until, by 1831-40, it had amost disappeared. The other Derbyshire parishes showed a similar pattern, but with different peak months:

Parish	Peak month	Decade when phenomenon commenced	Decade when peak reached maximum	Peak percentage
Ashover	July	1751-60	1781-90	19
Bradbourne	November	*	1801-10	32
Brailsford	October	1791-1800	1801-10	23
Brassington	August	1761-70	1801-10	51**
Matlock	September	1751-60	1801-10	25
Wirksworth	September	1751-60	1801-10	38

* Baptism figures for 1751-60 are missing in Bradbourne, but the peak was well established in 1761-70.

** The exceptionally high peak of 51% in Brassington was followed by a decade in which August baptisms were 10.2%, little above average.

Amongst the Nottinghamshire parishes, EDWINSTOWE shows the phenomenon clearly, with an October peak of 21.5% in 1781-90, and Gedling a much modified November peak, barely perceptible in 1761-70, rising to 17% in 1781-90, after which it vanishes.

Finally, the graphs for every parish but one show a flattening in the early 19th century. Figure 2 shows this flattening for the combined Nottinghamshire parishes, for which the range (the difference between the highest and lowest monthly percentages for the period concerned) in the successive periods diminished thus:

Period	1601-50	1651-1700	1701-50	1751-1800	1801-40
Range	4.4%	4.2%	4.1%	3.0%	2.0%

In other words, the seasonal influences diminish as we approach the end of the period.

How can we interpret these observations? The fundamental natural events preceding baptism are conception and birth. We have to disentangle a complex of factors, some of which operate directly on the choice of the date of baptism, others of which act indirectly on baptism by determining the seasonal pattern of conception. Clearly, if conceptions follow a seasonal pattern, this will influence the baptism

pattern, but will not completely determine it, since as a rule the actual date of baptism is a matter of choice.

The factors acting directly on baptisms might include, for example, canonical law on baptism, such as we have seen operating on marriage; local customs, such as the saving up of baptisms for the patronal festival of the parish; or superstitions regarding favourable or unfavourable months for baptism. I have not been able to find any canonical law on baptism which would affect its seasonality, but possibly readers of L.P.S. may be able to enlighten me. What can explain the Derbyshire 'peak month' phenomenon described above? It is surely inconceivable that it can be due to a conception pattern; that, for example, the 51% of the total decadal baptisms (1801-10) occurring in August in BRASSINGTON could mean that 51% of conceptions occurred in November - or in any other one month. Baptisms were obviously being saved up for some special occasion. The first possibility seemed to be the patronal festival, but some parish peaks were not in the right month for this. Was the occasion religious or secular? Why did it arise at this time in this group of parishes? I hope that other readers of L.P.S. who have come across similar phenomena may help towards an explanation. Clearly any such significant local deviation from a generally established regional pattern will interest the local historian, who will wish to establish the reasons for it. It will be of importance, too, to the local population student, for, as will be shown below, it can be a source of error in reconstitution studies.

Turning now to factors which operate on conception and birth rather than directly on baptism, and which might determine a seasonal pattern, some possibilities come readily to mind. There may be a biological rhythm, as there is in plants and animals. There might be ecclesiastical influences, such as the discouragement of indulgence in intercourse during Lent. There might be occupational factors; it has been suggested that long hours of hard work in harvest time in a predominantly agricultural community left little time or energy for intercourse. It has been suggested, too, that long hours of winter darkness encouraged intercourse - it was reported that a period of power cuts in a New York winter produced a peak of births nine months later! And, of course, it might be suggested that there should be some relationship between the known seasonal pattern of marriage at any period and the pattern of conception. But one has to be very cautious in linking these possible factors to the known baptism pattern. We need to keep clear the distinction between birth and baptism. An example may help to reveal the difficulties.

U.M. Cowgill has written three articles (1) in which she discusses, amongst other issues, birth seasonality in York between 1538 and 1812, using the printed parish register transcripts. Dividing the period into five parts, 1538-1601, 1602-1651, 1652-1701, 1702-1751 and 1752-1812, she aggregates the baptisms over each of these periods and obtains baptism patterns very similar to those which I have established for my Derbyshire and Nottinghamshire parishes. She then treats these as birth patterns, counting nine months backwards, for example, to obtain conception patterns, and drawing inferences about seasonal influences on conception. The registers, of course, give the dates of baptism, but the date of birth is given in only a few years in any parish. Miss Cowgill justifies her assumption by the following statement in the Nature article: "In the limited number of cases for which data for both events are given prior to 1750, the average waiting time is about three days. After 1750, with the exception of adults who are being admitted to the Established Church, the waiting time is five days. In most cases the difference is so small that, for the purposes of this study, the baptism and the birth date can be considered to be essentially the same". Miss Cowgill is not alone, of course, in making this assumption; it is frequently made in reconstitution studies. I suggest that the evidence offered is often missing or entirely inadequate.

Under what circumstances can we establish a credible relationship between the baptism pattern and the birth pattern for a specific parish - in other words, establish a birth-baptism interval which can be taken as reasonably representative? I suggest that there are two essentials:

i. The proportion of cases in which both dates are given must be high enough to make it clear that they constitute the general rule and are not exceptions. If, for example, only one birth date were given for every twenty baptisms, there would be a strong probability that they were given for some special reason and were not representative. Such a high proportion is only likely to occur in a few years in any parish.

ii. Even if we find a period in which every baptism has its birth date recorded, this is still not enough to establish a representative birth-baptism interval. The following table shows the distribution of the birth-baptism intervals for two imaginary parishes.

Interval (days)	0-7	8-14	15-21	22-28	29-35	36-42	43-49	50-56	57-63
Distribution									
Parish A	12	36	22	2	1	0	0	1	2
Parish B	3	7	8	8	9	6	8	2	4

For Parish A we could fairly assume a birth-baptism interval of about 12 days (the median has been used as it is usually a better guide than the average). For Parish B, the spread is so wide and so even, that it seems to me to be quite unrealistic to assume any representative interval. So that not only must there be a high proportion of cases in which both dates are given, but there must be a high degree of concentration of the intervals about the chosen representative interval.

There is a further difficulty. Since there are few parishes in which birth dates are given over a long period of time it is, as a rule, only possible to establish a representative birth-baptism interval, if at all, for isolated and comparatively short periods? Can we assume that such an interval is valid for other periods in the same parish. Or for other parishes? There can undoubtedly be considerable variations in the same parish between one period and another. In the Derbyshire parish of WINSTER, for example, I have found an abrupt change in the interval within five years due, so far as one can tell, to the arrival of a new incumbent. Dr. R.S. Schofield tells me that he has found considerable variation from one parish to another, the range of the median interval for the parishes which he has surveyed varying from around 18 days in the late 17th century to 111 days in the late 18th century. It is clear, then, that one must be very cautious in transferring a known birth-baptism interval from one period to another or from one parish to another unless further evidence becomes available. It would be most useful to have a comprehensive survey of all the evidence which parish registers provide on this important matter. Until this is done, and unless a recognisable pattern emerges, much work which involves a knowledge of the birth-baptism interval in a given parish at a given time is bound to be speculative.

Let us consider how far the York figures satisfy these requirements. Printed transcripts are available for eleven parishes (2), though not all of them are complete. Analysing the baptism entries produces the following table, in which the period covered by the transcript is shown under the name of the parish, the columns headed (a) give the total numbers of baptisms in each period, and the columns headed (b) the number for which birth dates are given. Figures are, of course, approximate, owing to obscurities in a few entries.

It would seem that there is no evidence from the transcripts adequate to establish a representative birth-baptism interval for the periods 1538-1601 and 1602-1651.

	1538-1601		1602-1651		1652-1701		1702-1751		1752-1812	
	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)
St. Michael le Belfry 1565-1778	1,311	0	2,458	0	2,330	178	2,128	44	1,085	166
St. Olave 1538-1644	852	1	923	2						
St. Martin, Coney St. 1557-1812	506	0	644	1	778	25	611	13	693	522
St. Crux 1540-1716	911	0	1,189	0	1,245	0	320	0		
All Saints, Pavement 1554-1738	517	0	914	0	1,128	0	947	1		
Holy Trinity, Goodramgate 1573-1812	261	0	1,007	0	1,037	189	1,101	39	1,374	1,358
St. Laurence 1606-1812			368	1	253	0	462	7	908	590
St. Mary Bishophill. Jnr 1602-1812			427	0	862	4	808	1	1,143	2
Holy Trinity, King's Court 1663-1812					676	1	901	3	465	224
St. Martin cum Gregory 1540-1734	388	0	528	0	608	104	404	0		
Holy Trinity Micklegate 1586-1777	313	0	949	0	793	38	912	0	446	3
TOTAL	5,059	1	9,407	4	9,710	539	8,594	108	6,114	2,865

In the period 1652-1701, five parishes, which had not previously given birth dates, began to do so in 1653, though two of them gave so few as to be of no use in determining a birth-baptism interval. The following table shows the period for which they continued to give birth dates, the period for which the proportion of birth dates given was high, and the median and mean interval calculated from these periods of concentration.

	Period for which birth dates given	Period of concentration	Number of baptisms	Number of birth dates	Median (days)	Mean (days)
St. Michael le Belfry	1653-1656	1653-1656	171*	167	6	6
St. Martin, Coney St.	1653-1654		(24)	(10)		
Holy Trinity Goodramgate	1653-1664	1653-1662	202	181	5	5
St. Martin cum Gregory	1653-1662	1653-1662	131	104	6	7
Holy Trinity Micklegate	1653 Only		(11)	(3)		

* There were a further 20 baptisms in 1653 before the giving of birth dates commenced.

There is a case for inferring a birth-baptism interval of 5 or 6 days for three parishes in the years immediately following 1653. Its extension to the other parishes would rest entirely on analogy, and there is no evidence for years subsequent to 1662. One doubt remains. The commencement in 1653 of the inclusion of birth dates would appear to be related to the transfer, by the Commonwealth Government, of legal registration to civil officials, and, in the three parishes which did change their registration style, there may have been associated circumstances promoting early baptism in these years. It would be interesting to know why only the minority of parishes changed their style and why two of them maintained it until after the Restoration. It may be worth noting that, averaging the numbers of baptisms for 1648-52 and for 1653-57, there is a drop of about 5% for the whole city, but rises of 10% and 15% for Holy Trinity, Goodramgate, and St. Martin-cum-Gregory respectively, though St. Michael-le-Belfry shows a drop of 6%.

Turning to the period 1701-1752, only one parish, Holy Trinity, Goodramgate, shows more than scattered birth dates. In this one

parish, between 1726 and 1734, out of 186 baptisms, 39 have some reference to birth, but not in the form of a birth date. In 31 of them, baptism is recorded as following one month after birth, which can hardly be intended as a precise interval. The other 8 are recorded as 1, 3, 5, 6, 6 and 11 weeks, 2 months and 3 years. In no parish, then, is there adequate evidence to establish a birth-baptism interval.

The situation between 1752 and 1812 is more complicated. Five of the seven parishes for which the transcripts extend into this period show substantial numbers of birth dates. In St. Michael-le-Belfry, there is no year in which as many as half of the birth dates are given, and they reach a quarter in only 7 out of the 27 years. It is noticeable that, of the 166 birth-baptism intervals given, all but 16 are over a month, which may mean that only those over a month are normally recorded. For the other four parishes, I have analysed the figures by decades, and I have calculated the median and the mean intervals (in days) for decades in which there is a high proportion of birth dates. The figures in brackets in the following table show the total number of baptisms, followed by the number of recorded birth dates, in the appropriate decades.

		1762-1771		1772-1781		1782-1791		1792-1801		1802-1812	
		Med	Mean	Med	Mean	Med	Mean	Med	Mean	Med	Mean
St. Martin Coney St.	1762-1812	9 (134- 92)	13	4 (136-125)	12	3 (125-111)	9	3 (90-83)	10	7 (114-107)	20
Holy Tnty Good/gate	1782-1812	(177- 1)		(246- 4)		5 (246-242)	12½	25 (207-207)	48	57 (285-285)	70
St. Laurence	1779-1812	(123- 0)		(130- 41)		8 (148-135)	15	7 (172-170)	12	7 (246-244)	11
Holy Tnty Kings Ct.		(179- 6)		(220- 53)		(193- 93)		(207- 34)		4½ (258-190)	12

The considerably greater difference between the median and the mean in this period, as compared with the years following 1653, shows that the spread of birth-baptism intervals is wider. In St. Michael-le-Belfry and Holy Trinity, Goodramgate, it is very wide indeed, so that in the former no reasonable representative birth-baptism interval can, in my opinion, be inferred, and in the latter (where the spread is clearly increasing towards the end of the period) no reasonable

interval can be inferred, at any rate after 1791. There remain, then, three parishes out of the seven for which transcripts extend into this period, for which a short birth-baptism interval of between 3 and 9 days can reasonably be inferred. Do the remaining eight parishes follow this pattern, or do they follow that of Holy Trinity, Goodramgate, or do they diverge even further? There is no evidence in the registers to determine this.

If I have discussed the York figures at, perhaps, inordinate length, it is because they provide an excellent example of the great care which must be taken in making any pronouncement about the relation between baptism and birth or baptism and conception. It is, of course, possible that Miss Cowgill is right but, in my opinion, she has failed to give the evidence needed to support her main assumption in the discussion of conception seasonality, and this reduces her discussion of seasonality factors to interesting but unsubstantiated speculation. And clearly the same care needs to be taken in some of the issues arising out of family reconstitution. Calculations of peri-natal mortality and of the time interval between successive births to the same mother, for example, will be affected of there is no representative birth-baptism interval or if it has been wrongly estimated.

It is, perhaps, of interest that these York parishes are giving such detail in their baptism entries at a time when, according to one authority, Anglican registration had "virtually collapsed". And is it a coincidence that this period coincides with the incidence of the Derbyshire baptism peak phenomenon described earlier?

There remains two further points which I would like to discuss. If a representative birth-baptism interval can be established, the actual length of the interval will obviously be crucial to any discussion of birth or conception seasonality. The following table shows the months of conception which would correspond to the months of baptism, assuming 0-, 1-, 2- and 3-month intervals

	Month of baptism											
	Jan	Feb	Mar	Apl	May	Jun	Jly	Aug	Sep	Oct	Nov	Dec
Interval	Corresponding month of conception											
0 months	Apl	May	Jun	Jly	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1 month	Mar	Apl	May	Jun	Jly	Aug	Sept	Oct	Nov	Dec	Jan	Feb
2 months	Feb	Mar	Apl	May	Jun	Jly	Aug	Sep	Oct	Nov	Dec	Jan
3 months	Jan	Feb	Mar	Apl	May	Jun	Jly	Aug	Sep	Oct	Nov	Dec

It will be seen that a three-month interval will produce quite a different seasonal conception pattern than if we had supposed birth and baptism to coincide. This table can be used to examine some of the suggested possible factors influencing the conception pattern, though it is not possible to do this in detail in this article.

i. Abstinence from intercoure in Lent would reduce March conceptions, and consequently December births, to a low level. The corresponding baptism trough would be in December, January or February with a 0-, 1- or 2 month interval respectively. Figure 2 would suggest that, after 1600, December baptisms in my Nottinghamshire parishes, though not high, could not be said to show a trough. Looking at all twelve Derbyshire and Nottinghamshire parishes, out of 254 December baptisms 'cells' (3), 61 or 24% showed less than 6% of the decadal baptisms, and only 34, or 13%,less than 5%. January and February have above-average baptisms throughout. It seems fair to conclude that, in these twelve parishes, there was no consistent and pronounced avoidance of intercourse in Lent after 1600, unless the birth-baptism intervals were unexpectedly long.
Miss Cowgill's graphs for York do show a marked December trough in the first period (1538-1601) and a small deficiency in her second period. If she is right in assuming a short birth-baptism interval, this would be consistent with Lent abstinence though, since other factors may be operating, it would not prove it.

ii. A reduction in intercourse at harvest would result in low baptisms in May to August, according to the length of the birth-baptism interval. May does not appear to show any marked deficiency, but June, July and August certainly do.

It has been suggested, as noted above that there might be some connection between the known seasonality pattern of marriage at a given period and the corresponding conception pattern. The attempt to trace such a relationship meets a further difficulty. Assuming that intercourse and conception follow shortly after marriage, one might expect a relationship between the marriage distribution and the distribution of <u>first</u> births. The two marked marriage troughs of the earlier periods, March and December, would then give rise to troughs in the baptism distribution of first children, and the November peak to a baptism peak, though the positions of these troughs and peak would depend on the length of the birth-baptism interval. Unfortunately, all our distributions are for <u>all</u> children, and there is no way, in an aggregative analysis, of separating out the distribution

for first children. Baptisms of other than first children would not be linked to the marriage distribution so that, for example, any peak resulting from the birth of first children would be modified by the differing pattern for subsequent children, the extent of the modification depending on the relative numbers of first and subsequent children. Miss Cowgill writes (4) "The short life-span of the adult would lead to a disproportionate number of families that bore only one child conceived at the time of marriage." This is quite inadequate. How disproportionate? Was the life-span so short (5)? Miss Cowgill's own estimate for York is that the average family size between 1538 and 1751 was 3.56 (6). Other writers have suggested, for various parishes, averages of between $3\frac{1}{2}$ and 6 (7). If only a quarter of the births were first births, the 'first-birth' effect would be very severely modified, and this modification would be increased by both extra-marital and pre-marital conceptions. My own impression is that it is hardly worth while to investigate this marriage-baptism relationship by aggregative analysis, though the more laborious family reconstitution approach may be more effective.

In this article I have given an account of the seasonal pattern of baptisms as it appears in six Derbyshire and six Nottinghamshire parishes. I have suggested that such a seasonal pattern will be due to a combination of factors of two kinds, those operating directly on the choice of the baptism date, and those operating indirectly through their effect on the seasonal pattern of conception, and I have discussed the difficulties which arise in considering the latter group of factors. The birth-baptism interval has been discussed at length because it is here that one frequently finds unproved assumptions which may seriously affect the validity of the conclusions, both in discussions of seasonality and in calculations from family reconstitution.

I hope that I have not left the impression that the investigation of baptism seasonality is unprofitable or too difficult. I am convinced that it can lead to useful results, especially by the investigation of local deviations from the general pattern, but only if the underlying assumptions are clearly stated and supported by adequate evidence. My article raises more questions than it answers, and I shall be glad to hear from other readers of L.P.S. who have experience to contribute.

The concluding article of this series will be devoted to burial seasonality.

NOTES

(1) 'Historical Study of the Season of Birth in the City of York, England', in Nature, No. 5028, March 12th, 1966.

'Life and Death in the 16th century in the City of York' in Population Studies, XXI Pt. 1, July 1967.

'The People of York 1538-1812' in The Scientific American January 1970.

(2) The first volume of the transcript for St. Mary, Castlegate, has recently been published, but would not be available to Miss Cowgill.

(3) For the definition of a 'cell', see 'An Enquiry into Seasonality in Baptisms, Marriages and Burials', Part 1, in L.P.S. No. 4, Spring 1970, p. 25.

(4) Scientific American, January 1970, page 104.

(5) "It is still quite likely that a man of 21 could have something like 30 years to live. If he married at 30 - not an unlikely age, as we have seen - he could probably expect to live 25 years with his wife" - P. Laslett in The World We Have Lost. p. 94.

(6) Scientific American, January 1970, page 112. I find it odd that Miss Cowgill should assume that the average family size would remain constant over so long a period.

(7) See The World We Have Lost - P. Laslett - Methuen, 1965, p. 102. Population in History - ed. Glass and Eversley - Edward Arnold, 1965. p. 48.