

MORTALITY CRISES IN SIXTEENTH-CENTURY DORKING

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T. R. Malthus author in 1798 of **An Essay on the Principle of Population**¹ was born and lived much of his life near Dorking in Surrey. The Malthus family's connection with the Church together with his own personal interests, encouraged belief in the possibility that he may well have consulted the Dorking parish registers (PRs) when formulating his population postulate. These potentially rewarding source documents provide an almost continuous record from 1538 through to the nineteenth century but have not hitherto been the subject of serious demographic analysis. Furthermore, typescript copies were available for the whole of this period, and were found to be accurate for the years analysed below.

This paper concentrates on certain mortality crises in sixteenth-century Dorking and uses the burial records as surrogates to determine mortality patterns and processes. Preliminary examination of the burial data suggested that an excessive number of deaths occurred in certain years during the 1550s

Table 1. Data extracted from Dorking Parish Burial Register 1551-70

Year	J a n	F e b	M a r	A p r	M a y	J u n	J u l	A u g	S e p	O c t	N o v	D e c	Civil Year Totals	Jan- July	Aug- Dec	Comments
1551	—	—	3	1	1	3	—	4	1		1	1	15	8	7	
2	2	2	4	1	5	3	1	2	—	2	1	4	27	18	9	
3	2	1	3	2	—	1	2	5	2	1	1	—	20	11	9	
4	—	2	—	—	2	—	—	4	—	—	—	1	9	4	5	
5	4	—	—	1	5	1	1	—	1	—	2	—	15	12	3	
6	1	—	1	1	—	1	1	3	3	2	3	3	19	5	14	
7	6	3	6	6	2	2	2	5	7	4	5	8	56	27	29	
8	—	3	7	10	5	6	5	8	4	4	5	9	66	36	30	
9	9	13	9	5	6	2	1	5	2	6	7	2	67	45	22	
1560	4	9	2	2	2	4	2	2	5	1	4	3	40	25	15	
1	7	3	3	8	3	—	—	3	3	—	4	1	35	24	11	
2	2	3	—	2	2	5	1	2	3	1	3	6	30	15	15	
3	5	5	—	1	2	3	1	3	11	12	12	11	66	17	49	Sept 6 "Plague"
4	1	3	10	1	2	2	—	2	3	3	5	1	33	19	14	
5	4	—	3	4	1	3	3	1	5	1	3	—	28	18	10	
6	3	3	3	3	4	—	2	—	2	—	—	1	21	18	3	
7	2	2	2	5	4	2	2	1	1	—	3	—	24	19	5	
8	—	1	2	2	—	—	3	1	3	3	4	3	22	8	14	
9	2	—	2	2	2	3	2	1	5	2	3	1	25	13	12	
1570	1	—	—	5	1	2	3	2	2	1	2	7	26	12	14	
Total	55	53	60	62	49	43	32	54	63	43	68	62	644			

and 1560s. This investigation therefore focusses on the twenty year period 1551-70. Table 1 shows burials for this period, extracted from the PRs. It was immediately obvious that during this period there were two separate phases of increased mortality and that these seemed to differ markedly both in duration and intensity. Wrigley and Schofield² have provided a Malthusian inspired systems diagram of demographic structural factors in sixteenth-century England. This diagram proposes that the heart of the system is a preventative check cycle, though it also includes the possibility of a positive check through links between food prices, real wages and mortality. This tension between the availability of food and the well-being of the population is at the core of Malthus's **postulata** and is the major focus of this paper.

Fig. 1 shows the prolonged period of excessive mortality in the late 1550s compared with the dramatic but isolated increase in burials in the autumn of 1563. Table 2 shows indices calculated from burials in Dorking for each of the calendar years 1557-63 related to the mean number of burials in the two five-year periods 1552-6 and 1564-8. These periods were used for comparison because the relatively high death-rate in each of the years 1557-63 precluded use of the conventional 'mean value' comparator, based on the years immediately before and after the centred year. Use of the periods 1552-6 and 1564-8 also took some account of the fact that even after 1563 mortality remained high compared with the years before 1557. Table 2 suggests that the calendar years 1557, 1558, 1559 and 1563 suffered "mortality crises" as defined by Schofield.³

Table 2. Indices of burials for each of the calendar years 1557-63 related to the surrounding years

Calendar Year/ period	Column A	Column B						
	1552 - 56 incl. 1564 - 68 incl.	1557	1558	1559	1560	1561	1562	1563
Number of burials/year	21.8 (mean)	56	66	67	40	35	30	66
Index Column B Column A x 100		256	303	307	183	161	138	303

Table 3 displays indices calculated for each calendar month of the years 1557-63 related to the mean mortality in the same month of the years 1552-6 and 1564-8. It will be noted that in 1557, 1558 and 1559 burials exceeded or equalled the monthly average in eleven months of each year. In contrast, 1563 suffered exceptionally from September to December. The pattern of mortality for the three crises years 1557-9 thus differed markedly from that of the single year 1563. Burials in 1563 are typical of the mortality crises described by Meuvret⁴ in possessing the characteristics of suddenness, intensity and short duration associated with plague. 1563 also follows the typical⁵ plague pattern of burials with a peak in late summer and autumn and with relatively few burials in the months on either side, thus isolating the stricken period. Further proof of plague is available from the Dorking PRs where the disease is mentioned as having visited the town in 1563. There was no support from the

Table 3. Indices of Monthly mortality for each of the years 1557-63 related to the mean mortality in the same month during the periods 1552-6 and 1564-8

Month	Year	1557	1558	1559	1560	1561	1562	1563
January		316	—	474	211	368	105	263
February		214	214	929	643	214	214	357
March		214	250	321	71	107	—	—
April		273	455	228	91	363	61	45
May		87	218	261	87	—	218	130
June		154	462	154	308	—	77	77
July		133	133	67	133	—	67	67
August		250	400	250	100	150	100	150
September		350	200	100	250	150	150	550
October		333	333	500	83	—	83	1000
November		227	227	227	182	182	136	545
December		615	692	154	231	77	462	846

Notes: (a) The tabled Indices assume that the mean number of burials in the particular calendar month during the periods 1552-6 and 1564-8 equal 100.

$$\text{Thus each Index} = \frac{\text{Number of burials in month of selected year}}{\text{Mean number of burials in same month}} \times 100$$

(b) The sign “—” in the Table denotes no burials occurred during the month in the selected year.

Dorking data for the Hollingsworths’⁶ suggestion that male plague deaths exceeded female, as both sexes suffered equally in 1563. By contrast, the persistently high mortality level suffered throughout the crises years 1557, 1558 and 1559 differs in not having some of the basic characteristics associated with plague. It was therefore considered helpful to look more broadly at national events in the 1550s which may provide clues about the unusually high and prolonged mortality in Dorking during the later years of the decade.

1555 and 1556 are generally accepted as providing disastrous harvests right across Europe. Hoskins⁷ has referred to the error of some English historians who have overrated the economic importance of fluctuations in the fortunes of the cloth industry in medieval and Tudor England and proposed that the effects of bad harvests were ‘manifestly worse’. Continuous rain was said to have resulted in the appalling harvests of 1555 and 1556 with ‘that of 1556 reported as being far the worse in living memory . . . all the corn was chocked and blasted. The Harvest excessive wet and rainy’. Hoskins shows that in 1556 wheat prices were more than double the average. This could well have had dreadful effects in Dorking because it is generally agreed that in the sixteenth-century wheat was the largest crop grown on the North Downs.

Such a scenario is a precursor for ‘subsistence crises’ proposed by Le Roy Ladurie⁸ as being typical of a Malthusian ‘positive check’ and which could be

QUARTERLY
BURIALS

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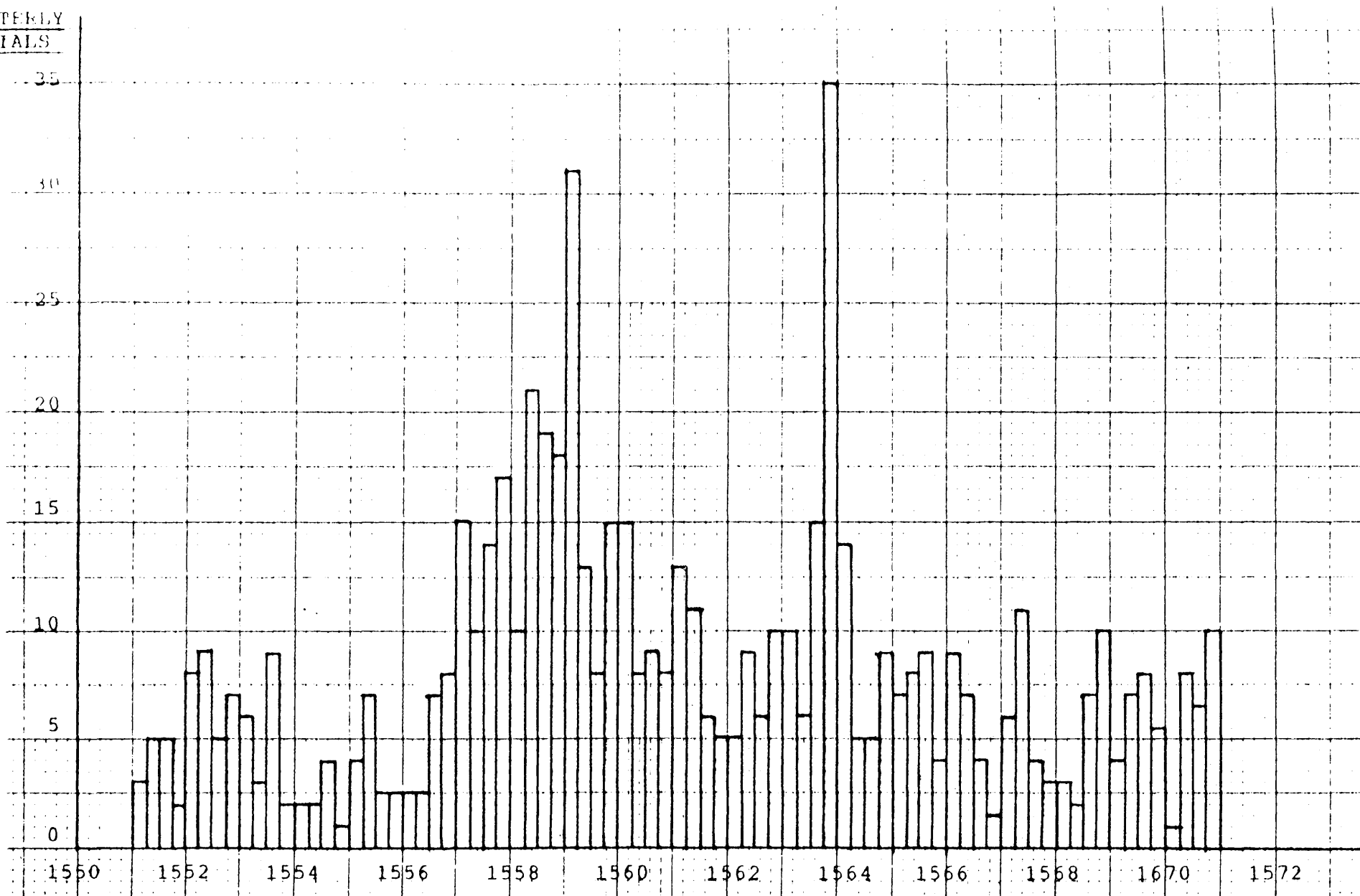


Fig. 1. Quarterly burials Dorking 1551-70

used in diagnosing social changes. The determining characteristics of subsistence crises are:

- (a) that a poor cereal harvest occurs with a sharp rise in grain prices;
- (b) poor people begin to die of hunger and of deficiency diseases;
- (c) the annual number of deaths double or treble; and
- (d) survivors, afflicted by famine, put off marriage or avoid having children.

Clarkson⁹ suggests that nationally the population increased 25 per cent in the first half of the sixteenth-century which he believed to be significantly faster than was the rise in agricultural production. Wrigley and Schofield,¹⁰ using muster rolls and tax returns with back projection methods, generally agree with Clarkson but suggest exceptional population growth in the 1520s and 1530s which slackened somewhat after 1541. As a consequence of the poor harvests the real-wage index has been calculated¹¹ to have dropped sharply in both 1555 and 1556 with purchasing power reduced by around 30 per cent.

Hill¹² considered that with so many people living near the border-line of starvation 'the difference made by good harvests and warm winters was incalculable'. Thirsk¹³ called dearth the most serious problem of the Tudor economy which 'struck a community . . . with a force we can hardly imagine'. Wrigley and Schofield¹⁴ noted that nationally there was a sudden fall in the expectation of life at birth in the late 1550s. Fig. 2 does not, however, support Ladurie's¹⁵ hypothesis of 'limited conceptions' as there is no indication of amenorrhoea in 1556 in Dorking. The increased number of marriages indicated in Fig. 2 from 1559 may imply some bunching of marriages following the dearths of 1555 and 1556 and the heavy mortality years of 1557 and 1558.

Lee¹⁶ has suggested that the major effect of high prices occurs in the two years subsequent to the actual price rise. This implies that the population's health was gradually eroded by food shortage such as to reduce the ability to resist disease rather than by causing outright starvation. Le Roy Ladurie¹⁷ refers to the justifiable increase in interest concerning high mortality from epidemics for which he blamed the 'deplorable standards of hygiene'. Confirmation that such conditions existed in mid-Surrey is available from the 1616 Reigate Court Rolls¹⁸ which refer to 'heaps of malodorous filth and other obstructions, with swine roaming in the garbage . . . unscoured ditches discharging into the highway . . .'

Causes of death were not recorded in the Dorking burial records during the 1550s. Creighton¹⁹, Fisher²⁰ and Slack²¹ have reported that during this period England suffered from a series of powerful, persistent diseases which appeared to be viral and have subsequently been generically termed 'influenza'. Creighton reports that in 1557 Europe was torn by a pandemic of 'pestiferous and contagious' sickness. Even when the harvest yield improved massively in 1558, the diverse illness continued, possibly more vehemently than in 1557. Thomas Short²² suggests that exceptional unhealthiness continued through from 1557-60. The Dorking evidence from fig. 2 suggests that this was indeed the case with both 1560 and 1561 experiencing 'minor mortality' crises. Diseases other than 'the influenzas', that may have been involved in the Dorking mortality increases of the late 1550s and 1560-1 include

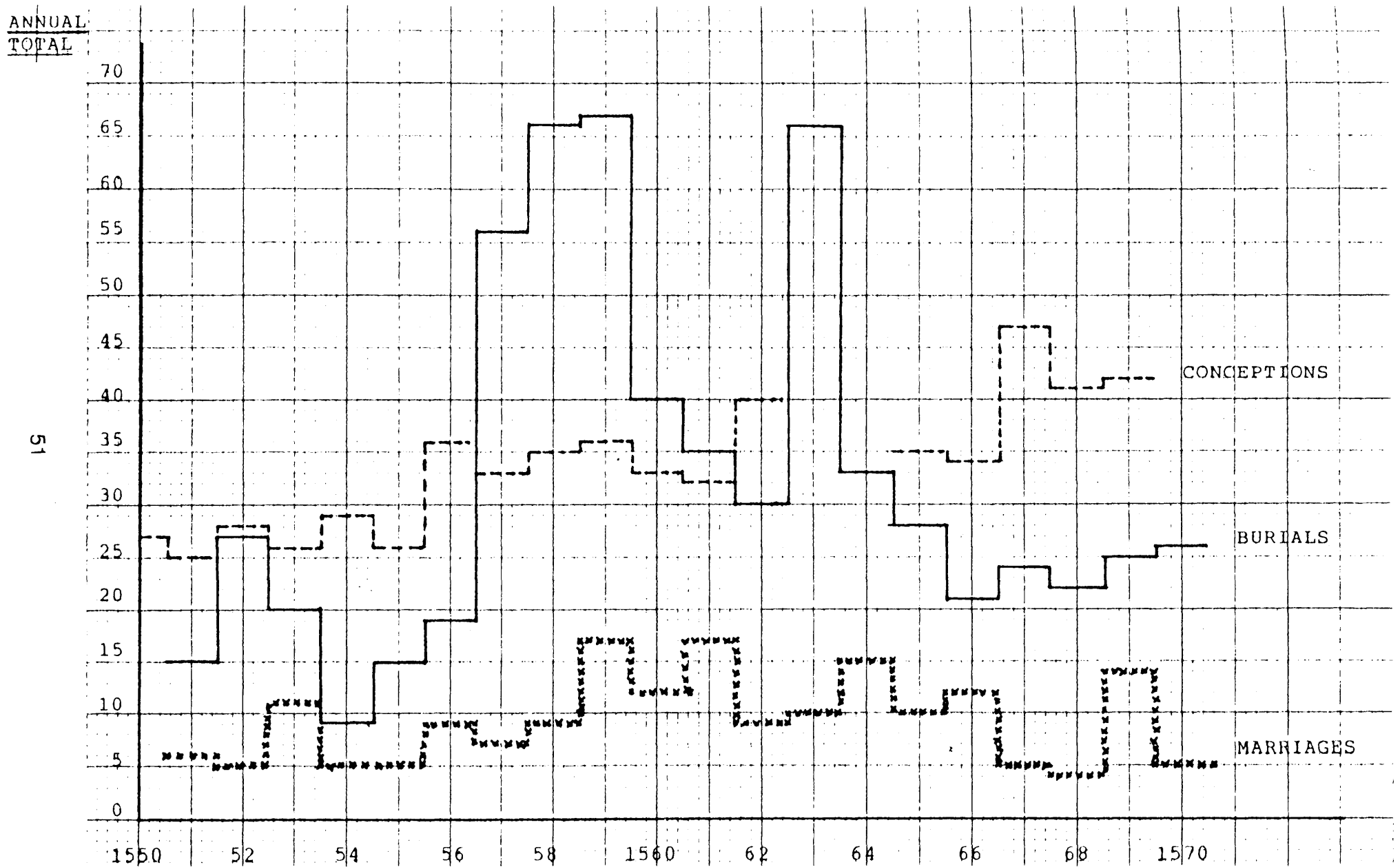


Fig. 2. Annual marriages, conceptions and burials 1551-70

smallpox but generally it is accepted that until the seventeenth-century this was not an 'alarming disease' in England. Typhus, recognised as frequently being associated with malnutrition, may have featured amongst the various fevers suffered over the period but no evidence is available suggesting that typhus acted around this period with anything of the vehemence wrought by the influenza-type diseases.

Before summarising the possible contributory causes of the high mortality in Dorking of the late 1550s it must be noted that certain medical historians challenge the Malthusian approach on the basis that the autonomous death-rate can over-ride countervailing influences. Chambers²³ has summarised these alternative views and suggests that epidemic disease has had more power over human life, than has 'famine, flood or tempest, let alone the march of armies'. Essentially these alternative approaches challenge the Malthusian explanation of demographic crises and suggest that it would be more reasonable to regard them as being of a biological nature caused by inadequate public health. Whilst taking note of the anti-Malthusian perspectives it is considered that the Dorking data have provided evidence to indicate marked differences between the extended pattern of mortality caused by influenza-style epidemics as compared with the sudden, intense, isolated increase in mortality associated with plague. The impact of the latter disease frequently being instanced by those who challenge Malthus's **postulata**.

The indications are that the crises of the late 1550s in Dorking had characteristics normally associated with a Malthusian 'positive check'. Throughout the country widespread harvest failures initiated a serious drop in real income. The probable reduction in food consumption is likely to have caused malnutrition and possibly premature death from famine or from diseases exacerbated by food shortage. Circumstantial evidence suggests that the high mortality was related to the European pandemic of 'influenzas' prevalent at that time. Thus the evidence presented here suggests that mortality in Dorking in the years 1557-9 was the result of changes in real income as predicted by Malthus in his **An Essay on the Principle of Population**. On the other hand the high mortality of 1563, the result of a plague epidemic, was not associated with such changes.

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