

PERSONAL TRAGEDY OR DEMOGRAPHIC DISASTER?

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Personal tragedy

To the north of Earsdon parish church, in Northumberland, stands a large obelisk which commemorates the 204 men and boys who perished in the 'fatal catastrophe' at Hartley Pit on 16 January 1862. Their ages ranged from ten to seventy-one years. There are 126 different surnames listed, many were members of the same family and all were members of the same small community. Mid-morning on Thursday, 16 January 1862 the 42-ton beam of the pumping engine broke in half and the free end plunged down the shaft, meeting a cage of eight miners coming up, and forming a blockage just above the Yard Seam. Three of the miners in the cage were killed at once, two more died before they could be rescued, but amazingly three were brought out alive. Strenuous and prolonged efforts were made to rescue the 199 miners trapped, but they were all asphyxiated. The bodies were brought to the surface and a mass funeral was held at Earsdon. These bald facts mask what was undoubtedly a personal tragedy multiplied many times over.

The catastrophe was extensively reported in both the local and the national newspapers. T. Wemyss Reid (later Sir Wemyss Reid) was the reporter from the *Newcastle Daily Journal* who kept an almost constant vigil at the pithead for ten days as the drama unfolded and whose graphic prose filled many columns in the paper each morning. The weekly papers, the *Alnwick Journal*, the *Berwick Advertiser*, the *Morpeth Herald* and the *Teesdale Mercury*, carried the story in their editions between 18 January and 22 February. *The Times*, while sometimes relying on reprinting from the local papers, had 'our own reporter' who sent his despatches 'by electric and international telegraph' from New Hartley, Seaton Delaval, North Shields and Newcastle, sometimes more than once a day. *The Times* printed these reports daily from 20 January to 7 February, starting on page twelve but, as the scale of the tragedy became obvious, progressing to page five and eventually making the leader column. The *Morning Chronicle* used the correspondents of local journals from 20 to 24 January, but then despatched 'a special reporter from our own establishment who will doubtless supply a considerable amount of additional particulars'.

The *Illustrated London News* and the *Illustrated Weekly News* sent artists to record the scenes at the pithead and at the Great Funeral on Sunday, 26 January. Their pictures reinforce the verbal descriptions of the reporters and other eyewitnesses.

The calamity touched the hearts of the nation, from Queen Victoria downwards. Prince Albert had died on 14 December 1861 and the grieving queen empathised with the colliery widows. Over £81,000 was rapidly subscribed for the dependants. Again the newspapers carried lists of the names of donors and the amounts given to the disaster appeal. They also reported the result of the inquest and the series of public meetings and agitation, which eventually resulted in improvements to the construction and working of mines and in the establishment of a permanent miners relief fund.¹ A retrospective memoir was compiled in 1912 and a history was written at the centenary of the accident.² These accounts concentrated on the factors leading up to the accident, the unsuccessful rescue attempt, the retrieval of the bodies, the funeral, and the changes in mining legislation. They included, as did the newspapers, a few personal stories of the victims, the rescuers and the bereaved. They made the point that several factors contributed to the scale of the tragedy. The beam of the pumping engine was constructed out of cast rather than wrought iron; the mining company had failed to maintain and service the pumping system so that the engine was working under an abnormal load; the mine was constructed with a single shaft, which prevented the men escaping by an alternative route; the incident occurred when both the back and the fore shift men were in the mine.

Using the 1861 census enumerators' books (CEBs) and the records of the Hartley Relief Fund, Adam and Joan Bunting reconstructed the 'Hartley Families'.³ At least 126 families were bereaved, probably many more. The Relief Fund calculated that the number of widows was 103 and the number of orphans was 259, with a further 45 adults (sisters, parents, an aunt and a grandmother) dependent on the deceased, a total of 407. However, this figure underestimates the total grieving population, as it deliberately excluded children aged over 16 years, on the expectation that they would be earning their own living. It also excluded the non-financially dependent siblings and parents, the uncles and cousins, who grieved none the less for the loss of their kinsmen. It is obvious that the womenfolk of Hartley lost husbands and sons. It is less obvious which women lost fathers and brothers, nephews, grandsons and cousins.⁴

Demographic disaster?

This paper seeks to examine the accident from the point of view of the impact on the local population. To what extent was this personal tragedy also a demographic disaster for the community? Did the widows remarry, or did many remain as heads of household? Were the spinsters able to marry, or was there a shortage of available bachelors? Did the sex ratio remain unbalanced or did men move into the community, or women move out? Did the marriage rate rise because 'economic niches' were available, or did it fall because the pool of

Table 1 Population of the parish of Earsdon and its townships 1861 and 1871

Area	1861			1871		
	Male	Female	Total	Male	Female	Total
Backworth	480	474	954	629	562	1,191
Burradon	269	238	507	297	264	561
Earsdon	281	296	577	279	324	603
Hartley	797	770	1,567	549	569	1,118
Holywell	658	603	1,261	840	715	1,555
Seaton Delaval	1,494	1,382	2,876	1,393	1,227	2,620
Seghill	935	866	1,801	1,028	952	1,980
Newsham & S. Blyth	1,476	1,425	2,901	1,419	1,499	2,918
Earsdon parish	6,390	6,054	12,444	6,434	6,112	12,546

Source: printed census reports: see footnote 5.

unmarried people was depleted? Did the birth rate rise to replace the lost children or did it fall because of the lost marriages? Did the death rate fall because vulnerable people had been removed from the community, or did it rise because the older men remained?⁵

The published reports of the censuses before and after the accident place the event in context.⁶ Table 1 shows the population of the parish of Earsdon and its townships as given in the reports following the 1861 and 1871 censuses. The population of the whole parish of Earsdon in 1861 was 12,444. New Hartley, as opposed to Old Hartley on the cliff top, was one of over ten communities in the parish. South Blyth was a port and urban area. Of the rural communities, some were predominantly farming and some mining, but most appear to have been mixed. The populations of the individual communities fluctuated from census to census according to which mines were in production.

Hartley Pit was in enumeration district (hereafter ED) 11, part of the township of Seaton Delaval. In 1861 the combined population of Hartley and Seaton Delaval was 4,443, of which 2,291 were male and 2,152 female. Two hundred and four deaths out of 12,444 do not sound very many: but, assuming that pit-workers were drawn exclusively from these two townships, 204 deaths out of 4,443 is significant (4.6 per cent). Since all the victims were male it was really

Table 2 Age distribution of males in sub-district of Earsdon and victims

Age	Males 1861	% male pop.	Victims	% victims	Victims as % male pop.
10-14	509	10.36	28	13.73	5.50
15-19	495	10.07	37	18.14	7.47
20-24	451	9.18	30	14.71	6.65
24-29	404	8.22	30	14.71	7.43
30-34	333	6.78	37	18.14	11.11
35-39	308	6.27	12	5.88	3.90
40-44	244	4.97	14	6.86	5.74
45-49	176	3.58	5	2.45	2.84
50-54	160	3.26	4	1.96	2.50
55-59	130	2.65	5	2.45	3.85
60-64	112	2.28	0	0.00	0.00
65-69	68	1.38	0	0.00	0.00
70-74	50	1.02	2	0.98	4.00
Total	3,440	70.02	204	100.00	5.93

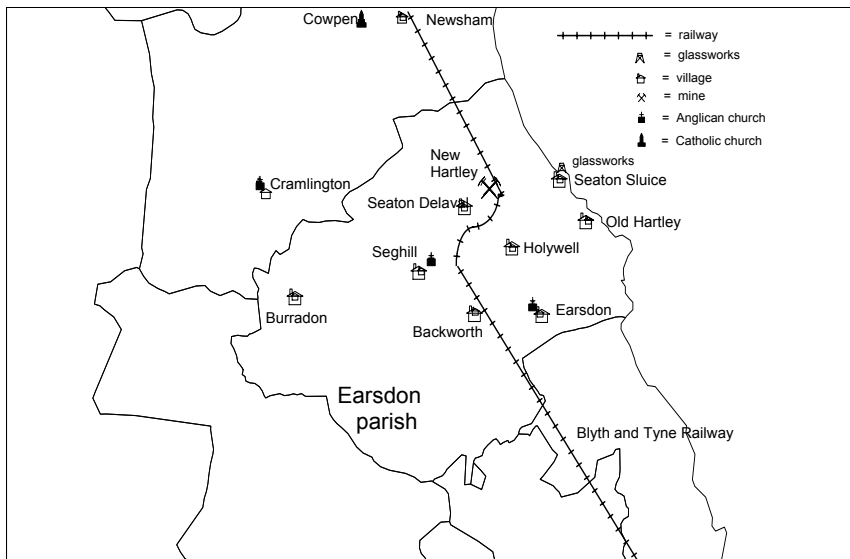
Sources: printed census report and Bunting (1982): see footnotes 3 and 5.

204 out of 2,291, nearly 9 per cent. None of the victims was under ten or over seventy-one. As Table 2 shows, in 1861 in the population of Earsdon sub-district 30 per cent of the male population was under ten or over seventy-four. Applying this ratio, it is likely that the number of males aged ten to seventy-one in Hartley was in the region of 1,604. Thus the death rate among the population at risk was 12.7 per cent.

As Table 1 shows, between 1861 and 1871 the population of Hartley fell from 1,567 (797 male and 770 female) to 1,118 (549 male, 569 female), while the population of Seaton Delaval fell from 2,876 (1,494 male and 1,382 female) to 2,620 (1,393 male, 1,227 female), making a total for the combined townships of 3,738 (1,942 male, 1,796 female). In the same period every other township in the parish had grown in size. Clearly this reduction by 705 shows not merely the loss of 204 males by death, but also the removal of other males and a corresponding number of females. The number of occupied houses was down from 918 in 1861 to 810 in 1871.

A footnote to the population tables in the 1871 census report reads: 'Mr Scott, the Superintendent Registrar for Tynemouth states that ... the decrease of population ... of the township of Hartley is due to the Hartley colliery

Figure 1 Map of Earsdon parish, showing the approximate positions of villages, chuches, industrial sites and railways in the area



accident and to depression in the glass bottle trade; and that of Seaton Delaval township also to the Hartley colliery accident'.⁷ The increase in population for Earsdon as a whole between 1861 and 1871 was just 0.8 per cent, compared to rises of 13.3 per cent between 1851 and 1861 and 34.1 per cent between 1871 and 1881. If we exclude Hartley and Seaton Delaval from the calculation, the remainder of the parish grew by 10.1 per cent between 1861 and 1871. Thus the accident did, both directly and indirectly, appear to contribute to a temporary slowing down in the overall rise in population of the area.

Looking in more detail at the CEBs for 1861, almost all the males over ten years of age in ED 11 gave their occupation as coal miner or some colliery related occupation, with the exception of a schoolmaster and a grocer. From the newspaper reports of the accident it is known that even these two men were employees of the mining company. For all other trades, crafts and services the residents of New Hartley looked to the adjoining enumeration districts. Fifty-two of the victims can be found among the households in ED 11. A further 46 can be found among the households of EDs 7–10. The *Newcastle Chronicle and Northern Counties Advertiser* on 1 February 1862 published a list of the names of the 55 pitmen left alive 'to set at rest doubts in the minds of anxious friends'. This list does not include ages and has few other distinguishing comments so is more difficult to match to the household schedules. However, ten surviving pitmen can be positively identified in ED 11, with a further 11 in the adjacent districts and an additional ten probable

identifications.

The most likely explanation for the missing 106 victims and 24 survivors is that they were not living in the parish of Earsdon nine months before the accident. Michael Sill has demonstrated the high level of mobility of coal miners in the north of England.⁸ Of those victims who have been traced, nine were born in Durham, five in Scotland, two each in Cumberland and Ireland, and one each in Lancashire, Leicestershire, London and Yorkshire. Of those survivors who have been traced one was born in Scotland and one in Suffolk. Of the 86 children in EDs 7–11 aged less than one year at the time of the census, nine had been born outside the parish of Earsdon.

If further evidence were needed of the mobility of Northumbrian miners there is a Colliery Pay Bill for Hartley Pit for the fortnight 5 to 19 March 1859.⁹ This lists the names and wages of 63 hewers, 10 putters, 11 drivers, and 11 other workers. Out of this workforce of 95 men and boys, 59 cannot be linked to either the lists of victims or of survivors 34 months later. Indeed during the fortnight four new hewers were taken on. This illustrates the turnover of workers at Hartley Colliery. It also indicates that there had been a substantial increase in the workforce from 95 to 258 over the three-year period.¹⁰ Some of these new recruits had come from neighbouring pits, others, as the birthplaces of their children show, had been moving every couple of years.

Another indication that some of the families did not regard themselves as long-term members of the community was that 22 of the victims were taken to Seghill for burial and four were taken to Cramlington.¹¹ Each is recorded in the burial register as of New Hartley and in the margin of the Cramlington register is added the note 'Killed by the dreadful accident at Hartley, 16 Jan 1862'. The register of Earsdon records the burials on 21 and 22 January of the five victims killed in the shaft but makes no mention of the over 150 buried on Sunday, 26 January.¹² The vicar, Richard Mason, led the service at the pithead in the morning and spent the entire cold afternoon repeatedly reading the burial service as the cartloads of coffins were interred in the freshly dug graves.¹³ However, he omitted to spend the dark winter evening doing the paperwork.

By 21 February 1862 the Relief Fund had begun fortnightly payments to 'the sufferers', which were to continue through to 1903. The first handwritten octavo notebook sets out the names and amounts 'by order of houses and rows'.¹⁴ These addresses can be checked against the CEBs. Two families were in ED 9. Forty-three families were from Old Hartley, which is ED 8. Three families lived at Seaton Sluice, which is ED 7. Nine of the families lived at Hastings Row in ED 10. One widow lived at Seaton Terrace, which is probably in ED 12, a further part of the township of Seaton Delaval. All the remaining families had lived in the colliery cottages of New Hartley, at Double Row, Long Row (called Single Row in the CEB), Cross Row and Quarry Row, in ED 11. Thus it was clearly EDs 7–11 that bore the brunt of the accident.

The first Relief Fund schedules show, however, that within weeks the

bereaved families were moving out. Eleven went to Scotland, eight to County Durham, two to Cumberland and one to Cheshire. Mainly this reflected the birthplaces of the widows, but in some cases it was to join other members of their families. The fortnightly pay sheets continued to keep track of their movements and the changes in their family circumstances.¹⁵

Births

The registers of the parish of Earsdon had been so well kept in the period 1679–1789 that their aggregate figures and their family reconstitution data are included in the Cambridge Group's work on English population history.¹⁶ The reconstitution continues to 1841 but there was a marked deterioration in registration towards the end of the eighteenth century. The failure of coverage was seen in an apparent fall in both infant and child mortality and in age-specific marital fertility rates. While there was until 1837 nowhere else but the parish church in which to be legally married and until 1849 no other consecrated ground in which to be buried, there were plenty of nonconformist chapels where infants could be baptised. Primitive Methodism was particularly strong in the area.¹⁷ There were also Presbyterian chapels at Blyth and Hartley.

Table 3 indicates a marked decrease in the percentage of Anglican baptisms of children from Hartley after 1862 with a partial recovery in 1867–1868, but the figures could merely be indicating increasing support for nonconformity rather than a decrease in the birth rate. Another way of exploring the effect of the accident on births is to take the figures from the annual reports of the Registrar General.¹⁸ These give the number of births for each registration sub-district. The registration sub-district of Earsdon is not exactly equivalent to the parish but is a close approximation. Table 4 shows the number of births in the sub-district of Earsdon for the years 1852 to 1872, the ten years before and ten years after the accident. Unfortunately figures are not available for 1868 and 1869.

An overall, though far from steady, rise in the number of births per year can be seen between 1852 and 1862. However, given the previously noted 13.3 per cent rise in the population of the parish for this period, there may actually have been a fall in the birth rate. There is a dip in the number of births in 1863, immediately following the accident. The upward trend resumes until 1866 but it is not clear what happens thereafter. Given the negligible rise in the population of the parish between 1861 and 1871 the birth rate may have initially risen after the accident and then levelled out.

Deaths

As mentioned above, the burial register for Earsdon has one very large omission: in the years before 1860 the entries are not in date order but appear to have been copied up in blocks according to the residence of the deceased. In 1860 there is the further complication of an explosion at Burradon colliery

Table 3 Anglican baptisms in the civil parish of Earsdon 1852–1872

Year	Earsdon	Seghill	Total	From Hartley	Percentage
1852	112	46	158	15	9.5
1853	136	30	166	6	3.6
1854	73	56	129	11	8.5
1855	133	45	178	18	10.1
1856	133	53	186	12	6.5
1857	100	61	161	15	9.3
1858	80	57	137	8	5.8
1859	57	79	136	8	5.9
1860	30	73	103	2	1.9
1861	19	64	83	4	4.8
1862	29	80	109	9	8.3
1863	27	75	102	1	1.0
1864	41	84	125	2	1.6
1865	33	82	115	1	0.9
1866	33	87	120	1	0.8
1867	48	77	125	3	2.4
1868	31	98	129	5	3.9
1869	50	78	128	1	0.8
1870	45	62	107	0	0.0
1871	49	70	119	0	0.0
1872	49	68	117	0	0.0

Source: Northumberland Record Office, parish registers of Earsdon and Seghill: microfilm nos. 238 and 1032.

resulting in 14 burials. Therefore a comparable exercise, calculating the percentage of burials that were of residents of Hartley for the period 1852–1872, would be completely meaningless. However, the Registrar General published annual figures of deaths by registration sub-district. Table 4 shows the number of deaths in the sub-district of Earsdon for the years 1852–1872, the ten years before and ten years after the accident. Again figures are not available for 1868 and 1869.

Table 4 Births and deaths in Earsdon sub-district 1852–72

Year	Male births	Female births	Total births	Male deaths	Female deaths	Total deaths
1852	172	167	339	86	79	165
1853	151	165	316	133	117	250
1854	162	162	324	71	78	149
1855	185	164	349	87	93	180
1856	193	179	372	88	83	171
1857	170	167	337	102	93	195
1858	195	203	398	96	92	188
1859	230	183	413	124	98	222
1860	228	229	457	210	99	309
1861	210	191	401	134	146	280
1862	244	224	468	331	96	427
1863	216	191	407	110	108	218
1864	222	200	422	103	92	195
1865	220	211	431	110	102	212
1866	235	224	459	138	120	258
1867	245	209	454	152	178	330
1868	N/A	N/A	N/A	N/A	N/A	N/A
1869	N/A	N/A	N/A	N/A	N/A	N/A
1870	231	217	448	115	103	218
1871	216	231	447	112	109	221
1872	218	211	429	127	119	246

Source: Annual Reports of Registrar General of Births, Marriages and Deaths, reports 15–35.

The fact that the number of deaths rose in 1860 cannot have been the result of the deaths of just 14 miners, but the impact of the tragedy of 1862 is quite clear in the figure for this year. The overall trend from 1852 to 1861 was an increase in the number of deaths per year, but again it is possible that the actual death rate was falling. Apart from an unexplained peak in 1867 and the unfortunate lack of data for 1868–1869, the impression is that the annual numbers of deaths in the years following the accident was very similar to those in the years before the accident, but had stabilised, suggesting that there was no over-all improvement in mortality.

Marriages

The Registrar General presented marriages by registration district, not sub-district.¹⁹ The overall trend is again erratically upwards but the size of the registration district masks any localised fluctuations in Earsdon, and the accident at Hartley is not detectable in these aggregate figures. Although Anglican marriages (by banns or licence) still comprised more than 70 per cent of all marriages, the absolute numbers of Catholic, nonconformist and civil marriages (each contributing about a third of the 'other' category) were rising steadily. Table 5 shows the number of marriages at Earsdon and Seghill parish churches and the number and percentage of those marriages that were of widows. The marriage peak occurs in 1855. There is a sudden fall in marriages in 1864, which could be because the population at risk had been lowered by the accident at Hartley, but Table 5 does not show any increase following the accident in the proportion of the marriages that were of widows.

In Hartley, however, many widows remarried remarkably quickly after the accident. Each widow received from the relief fund a weekly allowance of eight shillings if she was without dependent children, rising to 12 shillings if she had one child, 15 shillings if she had two children and 17 shillings if she had three children.

The report to the executive committee for 1863 makes it clear that

allowances are to continue, except in cases of gross misconduct, to the widows so long as they remain unmarried. ... Widows on remarrying are to have £20. ... The calculations in connection with the female lives have been based on government tables. The estimate of the amount to be deducted for the probability of the widows remarrying and so forfeiting their allowances, and the value of the allowance to be made on marriage, are necessary approximations; as however correct the statistics of marriage for the population (which have been the guide in this instance) may be, yet when we come to deal with comparatively limited numbers, and with a particular class, the application of such statistics can only be considered a rough approximation. In the present instance there are two counter influences, – there is the inducement held out by the bonus on marriage, on the one hand, while on the other hand there is the deterring influence of the loss of a liberal allowance. It is doubtful, however, whether the forfeiture of the allowance will very materially affect the marriage rate, as the sum down will no doubt prove attractive; it is therefore assumed that the rate of marriage will not differ widely from that which generally prevails.²⁰

The officers of the relief fund were trying to be fair both to those widows who

Table 5 Anglican marriages in the civil parish of Earsdon 1852–1872

Year	Earsdon	Seghill	Total	Widows	
				Number	Percentage
1852	58	1	59	4	6.8
1853	53	0	53	3	5.7
1854	75	4	79	8	10.1
1855	109	2	111	7	6.3
1856	92	8	100	5	5.0
1857	56	10	66	5	7.6
1858	83	13	96	3	3.1
1859	45	11	56	6	10.7
1860	55	12	67	1	1.5
1861	49	12	61	4	6.6
1862	62	2	64	6	9.4
1863	57	9	66	6	9.1
1864	45	4	49	4	8.2
1865	64	8	72	4	5.6
1866	56	13	69	7	10.1
1867	56	9	65	4	6.2
1868	62	7	69	1	1.4
1869	52	6	58	3	5.2
1870	43	10	53	3	5.7
1871	73	14	87	7	8.0
1872	69	9	78	5	6.4

Source: Northumberland Record Office, parish registers of Earsdon and Seghill: microfilm nos. 238 and 1032.

wished to remarry and to those who wished to remain as widows. They had called upon actuarial advice to estimate how generous they could be with the money donated to the relief fund and yet have enough to support all the orphans until they were of an age to earn their own living and all the widows until they either died or remarried. They did not want to be accused of meanness and yet they did not want the embarrassment of running out of funds once public interest had evaporated.²¹ In addition to the weekly allowances, children also received free education. Removal, medical and funeral expenses were paid (£3 for the death of an adult, £1 for the death of a

Table 6 Unmarried persons by age in Hartley and Seaton Delaval (EDs 7–11)

	1861	1861	1871	1871
Age range	Spinsters	Bachelors	Spinsters	Bachelors
25–34 years	25	42	26	34
35–44 years	17	19	14	8
45 years and over	21	21	24	11
Total	63	82	64	53

Source: CEBs

child). Those women who did not wish to remarry, therefore, could exercise the right to remain widows without fear of destitution. However, whereas under 'normal' circumstances a man marrying a widow took on the financial burden of bringing up her children, men marrying these widows had no financial responsibility for their children and their wife came with a £20 dowry. The authors of the report were correct in surmising that the bonus would be an inducement to marriage. The sum down does indeed appear to have proved attractive. They may have been wrong in assuming that the rate of marriage would 'not differ widely from that which generally prevails' for widows.

The first widow remarried in September 1862 and by the end of the year six had done so. The fortnightly pay sheets note the date of marriage and the name of the groom.²² By March 1864 the fortnightly pay sheets were printed forms with hand-written annotations. A further 28 widows had remarried by September 1864.²³ By September 1869 the forms had been reprinted, probably because of the number of annotations. The number of widows who had remarried by March 1871 was 64 out of the original total of 103.²⁴ Given the fortnightly allowance, none of the widows had to remarry to survive. That so many did remarry suggests they had other reasons: to provide a surrogate father for the children of their first marriage, for their own protection in a male-oriented society, or as the prayer book said 'for the mutual society, help, and comfort, that the one ought to have of the other'.²⁵ The annual reports of the executive committee give the reduction in the number of children and widows eligible for relief. The number of widows was reduced not merely by remarriage but also by death and occasionally by those 'struck off for misconduct'.²⁶ By 1872, ten years after the accident, the number of widows remaining was 33 and the number of children still eligible was 54. By September 1898 there were only six widows remaining, four having died in the preceding half year.²⁷

Spinsters and bachelors

Table 6 compares the numbers of unmarried people by sex and by age range in EDs 7–11 in 1861 and 1871. The fact that women generally married earlier than men may account for the consistently smaller number of spinsters than bachelors in the 25 to 34 age range, although this might also be the product of a skewed sex ratio. The total number of spinsters enumerated in each census is very similar, but given the overall fall in population this represents a higher proportion of the female population remaining unmarried in 1871 than in 1861. What is striking is the fall in the number of bachelors in each age range and relative to the number of spinsters over the ten years. In addition to the direct effect of the deaths of bachelors in 1862, the decrease may be due to out-migration of single men in search of work in other areas and to bachelors marrying widows rather than spinsters following the accident.

Age and sex structure

Figure 2 offers a comparison of the age structure of the community the year before and nine years after the accident. It shows that in 1871 there were fewer males in each age range up to the age of 60 than there had been in 1861. These men would have been under 51 at the time of the accident and in the age groups of the victims. Males aged between 10 and 20 in 1871 would not have been old enough to be victims of the accident, yet they also show a decrease. The decrease in the number of boys under 10 represents the survivors of those born since the accident, and the decrease could represent a fall in the birth rate, an increase in the child mortality rate, or out-migration. Figure 2 also shows that there were also fewer females in each age range up to the age of 55.

A closer look at those aged up to 25 reveals that the situation is more complex. For males in 1861 there was relatively little depletion with age, which would either indicate recent low levels of mortality or, far more likely, substantial in-migration. In 1871 there was slow but steady depletion to the age of 14 but then a sudden drop from 15 onwards, indicating out-migration once boys could earn sufficient to keep themselves. Among the female population there is evidence of a decrease in numbers at the age of 13 both in 1861 and in 1871, representing girls going into service, returning from the age of 17 in 1861, but not until 19 in 1871, possibly in preparation for marriage.

Occupational profile

Figure 3 shows male employment in Hartley and Seaton Delaval (EDs 7–11) in 1861 and 1871. While there is considerable variation in the exact terminology used, the overall loss of approximately 80 mining jobs is quite clear. On the other hand when 204 mining lives were known to have been lost, for there still to be a workforce of 143 means that over 120 new workers must have been taken on or transferred. The 55 surviving employees of Hartley Pit had requested letters of recommendation from the owner to obtain work at neighbouring collieries.²⁸

Figure 2 Age structure of the community before and after the incident

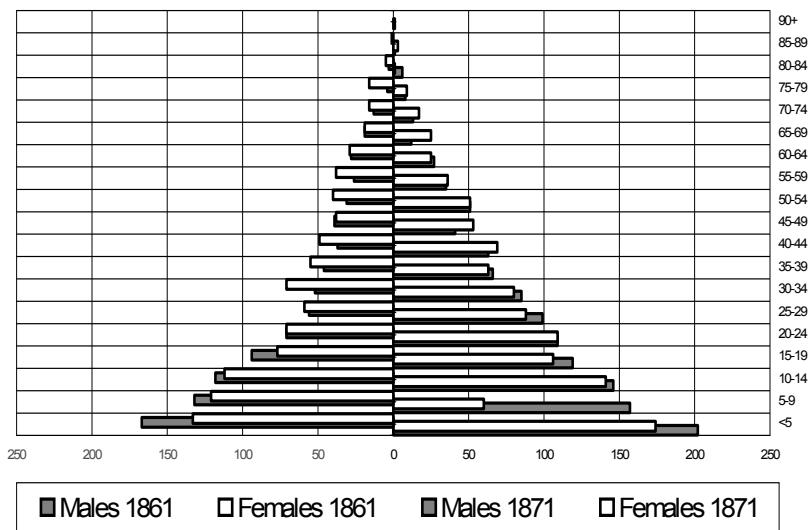
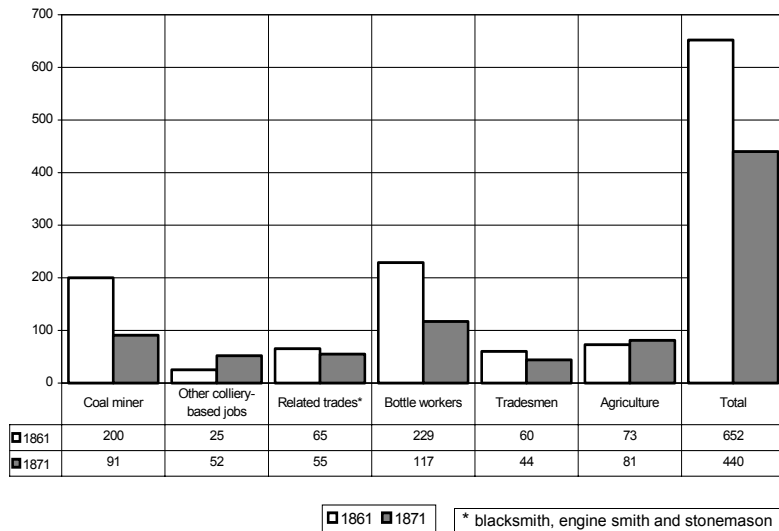


Figure 3 Male employment in Hartley and Seaton Delavel (EDs 7–11), 1861–1871



Calculations are complicated by ignorance as to how many of the men who gave their occupations to the enumerator as blacksmith, engine smith or stonemason were employees of the mining company. It is known that there were five stonemasons among the victims. Figure 3 shows that there was also a small reduction in the numbers employed in these related trades, produced by a fall in the numbers of blacksmiths and engine smiths, partially compensated by a rise in the number of stonemasons.

The other place where engineers were employed was at the glass bottle factory at Seaton Sluice, which clearly had problems of its own. Figure 3 reveals a 50 per cent drop in the workforce over the ten years, a much greater drop than in the mining sector. The largest decrease was among apprentices, but there were also decreases among both the skilled workers and labourers. The bottle works had been established in 1763 and by 1777 produced 1.74 million bottles per year. According to some writers the bottle works closed in 1870.²⁹ Craster attributed the closure to the Hartley accident ruining the coal trade in the district. However, there were several other pits in the area producing suitable steam coal from the same seam as Hartley. It may be that those mining companies had vending agreements to export their coal via Blyth or the Tyne, whereas Hartley was committed to sending its coal to Seaton Sluice.³⁰ Anderson attributed the closure to a lack of orders and to competition from Belgium, Switzerland and other parts of England. The works were auctioned in 1872 and the six conical furnaces demolished in 1896.

Given the decrease in the numbers in the extractive and manufacturing sectors it is hardly surprising that there was a corresponding decrease in the number of tradesmen in the area, as Figure 3 shows. The largest falls were in boot and shoemaking and in tailoring. Miners and glassworkers would have needed frequent repairs and replacement of their footwear, and miners in particular would have worn through the shoulders, knees and hips of their suits very rapidly.

The one sector of the economy that appeared to be buoyant was agriculture, where overall numbers rose from 73 in 1861 to 81 in 1871. In 1861 13 farmers held 1,290 acres of land, and claimed to employ 22 labourers; by 1871 their number had risen to 18, holding 2,032 acres and employing 33. Their produce would have found a ready market in the expanding town of Blyth and the city of Newcastle.

Another feature of the agricultural sector was the number of women employed. Table 7 shows the number of women who declared an occupation in the census returns, or on whose behalf an occupation was declared, and the age range where more than one woman was employed. The most striking feature of this table is the remarkable increase in female agricultural employment, providing further testimony to the buoyancy of agriculture in the area. The rise in the numbers employed in domestic and general service is offset by the falls in other categories of servant and may be an artefact of the enumeration process. There seems to have been a slight fall in the needlecraft occupations.

Table 7 Female Occupations

Occupation	1861	1871	Age range
Cook	1	2	24–63
Dairymaid	5	2	17–60
Domestic servant	1	6	11–28
Dressmaker	26	19	16–61
General servant	31	38	8–64
House servant	7	0	16–57
Housekeeper	14	11	17–63
Housemaid	4	2	21–50
Laundress	3	2	27–57
Midwife	1	1	
Milliner	1	0	
Nurse	1	1	
Schoolmistress	2	5	22–42
Seamstress	1	2	25–73
Charwoman	0	1	
Milkwoman	0	1	
Agricultural labourer	2	22	14–57
Total	100	115	

Source: CEBs

The other female occupation that saw an increase in numbers was school-teaching; there was, however, a decrease in male schoolteachers from 3 to 1. There had been a school in Hartley, run by the mining company, before the accident. Under the terms of the 1861 Mines Inspection Act boys between 10 and 12 could only be employed with a certificate that they could read and write.³¹ After the accident the Relief Fund provided free schooling for the children of the victims. The first 23 names on the register of admissions in May 1862 are listed as orphans.³² The last orphan became old enough to join the school in October 1868. Other fee-paying children were admitted, the sons and daughters of miners, blacksmiths, butchers, farmers, masons, joiners, policemen, platelayers and the stationmaster.

Table 8 shows that, although there were fewer children in the 5–15 age range in 1871 than in 1861, a much higher proportion of them were claimed to be attending school. However, the proportion that were coalminers had

Table 8 Children aged 5–15

Occupation	1861	1871
All aged 5-15	697	522
Scholar	304	329
Apprentice	40	14
Coalminer	33	24

Source: CEBs

remained remarkably similar, and probably did not change until after the 1872 Coal Mines Regulation Act placed further limitations on the employment of boys under 16.³³ There had been a marked fall in the number of apprentices, most of whom had been employed at the bottle factory.

Three other terms appear in the column for 'rank, profession or occupation' in 1871 which are not used in 1861. Again this may be an artefact of the enumeration process, or it may throw light on the socio-economic conditions of the community. The terms are 'annuitant', 'pauper' and 'unemployed'. There were 25 annuitants in 1871 (6 male and 19 female) ages ranging from 29 to 84: thirteen of these can be positively identified as recipients of the Relief Fund. There were 16 paupers (3 male and 13 female), ages ranging from 4 to 79, and three unemployed (all male), ages 14, 24 and 33. The older men were a colliery agent and a miner respectively.

In-migration

In 1861 just over 15 per cent of the population were born outside Northumberland. By far the largest number of these in-migrants came from Durham. Other substantial migrant streams came from Cumberland, Norfolk, Yorkshire, Scotland and Ireland, with individuals or single families from other counties. In 1871 the proportion of in-migrants was still under 18 per cent. Numbers from Cumberland, Durham, Yorkshire and Scotland had fallen but numbers from Norfolk and Ireland had risen. People born in Norfolk accounted for 25 per cent of those born outside Northumberland in 1871, while those born in Ireland accounted for just under 16 per cent. Raper notes that many of those born in Norfolk came from the country estate of Lord Hastings, the local landowner.³⁴ This may have been a 'pull factor', but Williamson notes movement from Norfolk to another part of Tyneside, and Perkyns notes movement from Norfolk to Kent, so 'push factors' may have been playing a part as well.³⁵

Conclusion

Burt, working at Seaton Delaval, was 'early on the scene – one of the

thousands who felt the keenest sympathy, and who would have been but too glad to help had help been possible'.³⁶ He explained that the 'tragic event produced a profound sensation throughout the country, ... and it cast a grim shadow over the whole district'. On 8 March 1862 the local newspaper reported that the 'fatal pit at Hartley is now as silent as the grave, all work in the shaft having been totally discontinued'.³⁷ The mouth of the shaft had been railed off, the metal from the engine was being sold for scrap and there was no likelihood of an attempt being made to resume working at the colliery. Hartley was what Williamson terms a 'constructed community'.³⁸ Once the pit was closed the reason for its existence had gone. The royalty stood idle until it was sold in 1874.³⁹ The new owners sunk two shafts half a mile to the northeast and called it Hastings Colliery. Tuck and Raper each describe the subsequent developments that affected the community.⁴⁰

The only building in New Hartley dating from before the accident is the public house, the 'Hastings Arms' and that has had extensions grafted onto all four sides since 1962. The remains of the shaft and engine house can still be seen close to the railway line, in a better state of preservation than they were in 1962.⁴¹ The children of Hartley play hide-and-seek around them. The accident was a personal tragedy for many of their ancestors, but it was not a demographic disaster.

The sources available to determine its impact are far from ideal, particularly as the censuses only allow comparison across a ten-year period, within which a variety of changes can all too easily be hidden. Nevertheless, the combined deployment of the census evidence, the Registrar General's annual reports, the parish registers and the Relief Fund papers has suggested a number of conclusions. Many of the widows did remarry, though some remained as heads of households. There was a lower proportion of bachelors and a higher proportion of spinsters in the community after the accident. Before the accident the sex ratio in the combined townships of Hartley and Seaton Delaval was 106; ten years after the accident it had stabilised at 108. The birth rate dipped in the year following the accident but it certainly did not plummet. The death rate in the years following the accident appears to have been very similar to that in the years immediately preceding it.

What seems clear is that the community did not disintegrate, and the impact of the tragedy upon the wider parish of Earsdon was muted. That it did survive, despite the accident and the depression in the glass bottle trade, would seem to be due to in-migration of miners from other areas, to expansion of the agricultural sector supplying food to rapidly growing urban areas, but largely to the provisions of the Relief Fund. This boosted the purchasing power of remaining widows, enabling them in turn to support local tradesmen. In providing free education for bereaved children it also provided a focal point for the community in the form of the school. Probably most importantly, it boosted the chances of widows remarrying, encouraging their new husbands to settle in the community and establish new families.

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NOTES

1. R. Fynes, *The Miners of Northumberland and Durham*, (Sunderland, 1923).
2. T.E. Forster, *Memoirs of the Hartley colliery accident of 1862* (1977), Northumberland Record Office, (hereafter NRO) 725/G.47; J. E. McCutcheon, *Hartley colliery disaster, 1862* (1963).
3. RG9/3847 and 3848; NRO, New Hartley Colliery Accident Relief Fund Papers 1862–1903, 488; A. Bunting and J. Bunting, 'The Hartley families', *Northumberland and Durham Family History Society Journal*, 7 (1982), 84–92.
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5. There were only two fatalities above the age of 60.
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7. BPP 1872 LXVI, pt II., 493.
8. M. Sill, 'Mid-nineteenth century labour mobility: the case of the coal-miners of Hetton-le-Hole, Co. Durham', *Local Population Studies*, 22 (1979), 44–50.
9. NRO, Colliery Paybills Hartley (1859) 4895/2.
10. One of the victims in the pit was not an employee, but a visitor from the glass works.
11. A separate ecclesiastical parish of Seghill was created out of the civil parish of Earsdon in 1846. The parish church is only two and a half miles from Hartley Pit. The parish of Cramlington lies immediately to the west of the parish of Earsdon. The parish church is only three miles from Hartley Pit.
12. Some Roman Catholics were buried at St Cuthbert's Church, Cowpen, three and a half miles north of Hartley Pit.
13. *Newcastle Courant*, Friday 31 January, 1862, 2, col.4.
14. NRO, New Hartley Colliery Accident Relief Fund Papers, 488/A/3.
15. NRO, New Hartley Colliery Accident Relief Fund Papers, 488/A/47–63.
16. E. A. Wrigley and R. S. Schofield, *The population history of England 1541–1871; a reconstruction*, (London, 1981); E.A. Wrigley, R.S. Davies, J.E. Oeppen and R.S. Schofield, *English population history from family reconstitution 1580–1837*, (Cambridge, 1997).
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31. Fynes, *Miners*, p.186.
32. NRO, New Hartley School Register of Admissions 1862–1869, 488/A/18.
33. Fynes, *Miners*, 264.
34. 34 E. Raper, *New Hartley: the story of a Northumbrian pit village* (no date).
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36. T. Burt, *An autobiography*, (London, 1924).
37. *Newcastle Chronicle and Northern Counties Advertiser*, 8 March 1862, 5, col.1.
38. Williamson, *Class, culture and community*, 56–62.
39. J. Tuck, *The collieries of Northumberland*, vol.2, (Newcastle, 1995).
40. Raper, *New Hartley*, 18–34.
41. McCutcheon, *Hartley Colliery disaster*, 49 and 145.

â€”The tragedies caused by accident, human error and carelessness have become the most significant in the early history of the region.â€”
â€”The patients to undergo this new medical procedure have been seriously disfigured by burns, serious accidents or personal tragedies.â€”
â€”The show is a catalogue of accidents, deaths and tragedies.â€”
â€”Any road accident that causes a death or serious injury is a tragedy.â€”
â€”Terrible human tragedies and unimaginable suffering result from fatal accidents in farming each year.â€”
â€”Some accidental deaths are not tragedies, it turns out.â€”
â€”Each death is a tragedy with devas
Disaster â€” The serious disruption of societal functioning causing widespread human, material, or environmental losses that exceed the local response resources, triggering calls for external assistance.
iv. Disaster Epidemiology â€” The use of epidemiology to measure the short- and long-term health effects of disasters and to predict the consequences of future disasters.
Human-Induced Disaster â€” A disaster which occurs as the result of intentional or unintentional human actions and that occurs in or close to human settlements.
Human Impact â€” Injury, mortality, increased disease morbidity rates for a variety of illnesses, subsequent displacement, and a lack of necessities, such as food and water. The demographic can change in terms of its size, the age of the demographic, lifestyle expectations etc.
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