Thesis

On the effect that the trade and
mode of living have upon the health
and physiognomy of the Lancashire Working
People.

By J. Stewart Bell

Bacup
Lancashire
The effect that the trade and mode of living have upon the health and prestige of the Lancashire Worker.

In writing upon this subject, I have chosen a portion of the north-east division of the county, as an illustration, particularly the borough of Bacup, a good sample of the numerous towns, villages, and machine villages which have sprung up within the last 20 or 30 years. In referring to facts which may have happened from 20 to 40 years ago, I state them on the authority of my father, who has practised in this district for nearly fifty years. With regard to statistics, I am sorry not to be able to produce official ones, firstly, because accidents of death are tabulated in such a haphazard manner, that in trying to uncover such a heterogeneous mass, one would get involved in difficulties requiring almost superhuman patience to overcome, and, secondly, because the tables are so scanty that they would give no accurate information.
The statistics given are therefore from data made by myself during the last four years, from information derived from other residents. I intend to describe the trade carried on in this district, how it affects the people generally, then more immediately, how it affects adults and children, and also the mode of living. These two subjects are so interwoven that I think I can best illustrate my subject by tracing the two things together. The great trade of Lancashire is the manufacture of cotton cloths, and upon it I shall chiefly dwell, but there are other, such as dyeing, printing, &c., the manufacture of woollen cloths, which are factors in the trade of the county, and have more or less effect on the health of the people.

Some fifty years ago the cotton and woollen trades were in a decidedly rudimentary state. At that time the weaving was all done in the cottages, and there the following account from an old patient over eighty of the sort of life they led. They rose at 6 A.M. and worked continuously until 8 or 10 P.M. Their diet was porridge and skimmed milk, and their wages were fifteen a day. The cotton and wool were carded in small factories turned by water, it was then brought home, spun on the spinning jacks
In some places on the then newly invented Jenny’s, the warp, after it had been spun, was sized before it could be woven, in order to do this, they had large pans filled with the sizing mixture (flour & water). After it had been sufficiently thick, the warp was carried out by the women’s children to be dried in the fields, or else by the help of a red hot iron. On inquiring at what age the children began to work, I was informed “as soon as they were able”, and one old woman told me that when she was a child, she was industrious by her parents, and had only to work from 8 AM to 8 PM, and the was at the age of five. On being asked about their health, the general answer given is “why we never ailed aught, and had no need for you doctors!” When one compares the half old men women, with their fresh colour and good teeth, with the present generation, while, puny, and with bad teeth, one is inclined to think that the mode of living in the past, when they worked hand in hand in their cottages, brewed their own ale, and were content to live on provide milk was much more beneficial to the race, than the mode of living at this present time, with its overpressure in schools, crowding in factories, high living, and all its constant train of ills, notwithstanding even the advantage of the Factory Act.

There is no doubt that the simple life and simple food had
a great deal to do with prolonging people's lives. Their occupation also was healthier, being, in those days, they tilled with pure flour, and were not living, as at present, in an atmosphere impregnated with china clay into which steam is constantly poured.

Unfortunately, I am not able to classify the deaths which took place in these times, as there were no records, but I have searched the registers of the Bajes Church, the chief place of burial for the surrounding districts, from 1813 to 1862, during which time hand-lorn weaving was in full swing. The number of deaths were 2,600, of which 104 were of children up to the age of five, 249 per cent died; from 6 to 20 years 9 per cent; from 20-30 years 13.5 per cent; from 30 to 70 years 11.5 per cent; above 70 years 14.5 per cent. The end of the first period marks the time at which the children begin to work, the second includes the time in which they become adults and married, the third period the prime of life and child bearing time. The last two being the time when they were slowly declining. The proportion of death is in the following ratio:

<table>
<thead>
<tr>
<th>Period</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the first period</td>
<td>77</td>
<td>78</td>
</tr>
<tr>
<td>In the second period</td>
<td>30</td>
<td>39</td>
</tr>
<tr>
<td>In the third</td>
<td>24</td>
<td>45</td>
</tr>
<tr>
<td>In the fourth</td>
<td>26</td>
<td>23</td>
</tr>
<tr>
<td>In the fifth</td>
<td>14</td>
<td>20</td>
</tr>
</tbody>
</table>
I have found that with the exception of the first period, the numbers follow the general rule, or the only way in which I can account for the high rate of infant mortality, is that the children were not properly taken care of, and that the mothers worked during the whole period of their pregnancy. In looking over the register, I find only 8 cases where the mother and child died on the same day, or a few days after, and from what I can gather, there was very little abnormal midwifery; the practice was entirely carried on by midwives. The patient reclining on her back, the operator pressing on the abdomen with a pack held with her hand in the patient's back. I have been told it was quite the exception for the doctor to be sent for as the women were well made, on which is not now the case.

We now pass from the period of handloom weaving, and come to the time when the people began to be crowded together in factories, and this may be subdivided into three periods: before the American war, and the time after the American war, when China clay displaced flour and water. The first factor of legislation with which we met in regard to the reduction of the hours of labour of young persons was in 1833, when an act was passed wherein it was provided...
That no young person under the age of 18 should be employed in any factory at any description of work for more than 12 hours a day, or 69 hours in one week. We may refer to the Act of 44, which was most wise and beneficial, as it not only confirmed the previous Acts, but included women in the same category as young persons. By this act the appointment of factory inspectors and certifying surgeons was made.

The children up to 13 years of age, having to pass under his hands to see if they were fit for work, the age for half-timers being 8 years, for young persons 13 years. It also provides for children working alternate days, and for school attendance for 3 hours per diem, if working every day, or 5 hours, if every alternate one. That no children should be employed more than 6 hours in one day.

The factory surgeon had large discretionary powers; if he thought a child was fit to work, he could pass it. Even if it were slightly under age, or in the other hand, he thought the child fairly delicate, and not fit for work, he might refuse it. It is the opinion of the certifying surgeon, that these discretionary powers has acted either than any of the late acts where the passing in Whitefriars done by birth and school certificates.

The certificates for passing the children should in the office of the Master was as follows. "I do hereby certify that — — (a lady) of — — residing in — has been personally examined
This day that the said child has the ordinary
strength and appearance of a child of at least eight
years of age, and that I believe the age of the child
to be eight years, and that the said child is well
incapacitated from disease or bodily infirmity, from
working in the above named factory, for the time
allowed by the act. The certificate for the young
person was materially the same, only "young person"
and thirteen years of age were substituted for child and
eight years of age.

The act then provides for the cleaning of the mills, and
orders the interior of the factories to be thoroughly aired
at least every fourteen months. It forbids children or
young persons to be employed in cleaning the machinery
while in motion; it disposes all dangerous machinery
to be guarded, and all accidents to be reported to
the Surgeon, who is to examine the accident, the
place where it happened, and to report the same to
the inspector. There is one bad point in the act; it
allows the recovery of lost time, i.e. if the factory
had been stopped through some failure of the machinery
the young persons (which includes women) and children
were allowed to make up for lost time, except on
Saturdays when work had to cease at 4:30 P.M.
There are also regulations for meal times which...
Allowed an hour and a half for meals in the course of the day, and the act also forbids any young persons or child working above five hours without a meal. The best act of any importance was passed in 1817-1818, in which the hours of labour for women and young persons are limited from 12 hours a day to 10 hours, and to 63 hours a week instead of 69 hours. Then came the act of 1833, in which it is enacted that no child or young person can be employed in a factory before 6 a.m. or after 6 p.m., except to turn time, and the time for overtime shall not exceed one hour before 6 a.m. or after 6 p.m.; also no child or young person may work on Saturday after 2 p.m. for any purposed whatever. The Act of 1817 is called the Factory's Extension Act. In this act, a large number of trades are included, such as those of iron, copper, paper, glass, dyeing, printing, bookbinding, baking, &c. What the Act defines, "manufacturing" to mean, any manual labour, excited by any trade, or for purposes of gain in, or incidental to the manufacturing of any article, or part of any article, or in, or incidental to the "altering, repairing, ornamenting, finishing, or otherwise adapting for sale any article." This definition of the Act includes many trades for which legislation was previously unfounded. And in some measure enshrined the overcrowding and overworking of apprentices and young persons in tinders' and melter's shops &c. The Act of 1817 now
comes under consideration, in it the time for children and young persons to work is between 6 a.m. & 6 p.m.; or between 7 a.m. & 7 p.m. They are not allowed to work continuously more than 6 hours without half an hour for meals, two hours for meals are allowed for meals on Saturday, if one hour is allowed the works close at 4 p.m., if less than an hour, at 12.30 p.m. Children are to be employed every alternate day or half day, and are not to be employed on consecutive Saturdays. The meals are required to be at the same hours every day, and during these times all employment is forbidden. The most important feature is the abolition of that clause of the Act which allowed poor work to recover lost time. The age at which the children and young persons are allowed to begin work is raised, viz.

for children 9 years. If they have passed the 2nd Standard, 11 for young persons, unless they have passed the 3rd.

The elementary education act of 1967 further raises the standard by 7 yrs. for children beginning work to 10 years. Demand certain penalties enforce the duty of parents to educate their children. It also regulates the school grants, which are paid to the school according to the efficiency of the scholars in passing their standards.

This more junior a true statement of all the factory legislation and there is one point, taking it all in all, that it has done a great amount of good in improving
the lot of the operatives, in preventing accidents; in
minimizing the number of accidents, occurring through
the unprotected state of the machinery, and in helping
the factories and workshops to clean and healthy as possible.
I am not sure that the last aid was an unmitigated
blessing, as some people would have us believe, and I certainly
do not stand alone in that opinion.

I shall now in a couple way describe the process
of manufacture.
The cotton used is of three sorts, American, which is
the best and cleanest, Egyptian and Suez, which is best.
The first process is mixing the cotton, i.e., taking a
certain amount out of the different sorts mixing them
together, in order to get a cotton to make a fair cloth; this
is generally done by elderly people, and is very easy
work, as they can do it in a sitting posture. There
is a good deal of dust flying from the cotton which
causes a certain amount of stomachache, but not more than
one would expect from any dusty occupation. But
before the American was the chief supply came from America
and the occupation in those days consisted in mixing
the different kinds of American together, which was
not nearly so dusty a process as it is now. I have heard
from several persons that it was an occupation sought
after by people of advanced years, but care, although
The work is not hard, it is never taken badly by persons unable to do anything else. The next process is the manufacture of the cotton which is done by the winder. This machine consists of a number of bobbins placed in rows on a drum, to break up the cotton. In the old time this was not properly done and was a great source of accidents, but now it is covered up and the cotton passes off a field of flax. During the last two years we have only had one accident, and that was because the main had some defect in attempting to pick some cotton from the bobbins, which were making one thousand five hundred revolutions per minute. He got his hand and forearm in the feed to compute the length of the cotton. Then proceed the sketching and winding, by which the cotton is cleaned and brought into shape. In the old style of machinery, the dirt flew about the room; this was one of the most prolific sources of phthisis. From the improvement of machinery a shaft has been attached to the engine, by which all the dust and waste of the cotton are blown into a room called the dust hole. This product is sold as cotton waste to make shorty and In that way the effect is compensated.

We meet with a large number of accidents in the carding and drawing rooms, and in 77 cases only 200 they are caused by poor corn comes, very often by willan.
Lifting up the covers for the machinery working, so by people attempting to pick off cotton while the machinery is in motion — Both my father and I found that in two districts of which he was certifying manager, and which contains a population of over 25,000 and 96 factories, of the accidents, while averaged from 90-100 per year considerably over 50 percent are caused in the carding or stretching rooms, and that these accidents are always of a bad type, as the best wire brushes of which the card is made cause a great amount of coughing of the silk pods.

The cotton is then carried on to the stretching, drawing and proving frames. The temperature of these rooms is very high, carding and stretching rooms being 83 F. for the stretching and proving rooms, 87 F. for the carding part of the house is done by women who, especially in the stretching department, have to carry large tins containing the cotton in the process of manufacture. After these processes the cotton is taken on to the mule-spindles for warp frames and the mule-spindles for lofts. The mule which is used for making the loft is a complicated machine furnished with a movable frame to carry the running above iron rails, this carriage moves backwards forwards, drawing and twisting the thread as it does so. The men who look after these machines are obliged to stand the carriage on its way.
backwards or forwards be upset, and the constant walking up and down on the hard floor causes a great many cases of flatfoot; in fact nearly all the cases of flat foot that we see in this neighbourhood are in milliners' women. This disease seems very likely to give great play for manipulation, because as the treatment for flat foot is rather a tedious one, the patients generally get tired of their own medical attendant & drift into the hands of these quacks who assure them that a bone is out of its place & after wrenching the foot inform them the bone is replaced which I am afraid they do not find to be the case.

The flame from the fire-ails is taken to the weavers who work it for the dyers—this process of dying the wool does cleanse the fibre, makes it clearer in the division of the colour trade. The straw on the loom during the process of weaving is very soft and from the earliest times weavers have prepared to twist the warp threads with some preparation before weaving with a view to strengthen them. The material used by ancient Oriental nations was terebene. The method first adopted in Lancashire was simply to spin the threads through some oxidative substance such as skim paste or dry there with fire, then the extra...
strength required for the work to pass through the loom but it made the cloth produced feel harsh. Tallow in oil was then boiled with the flour or starch paste to give it the desired softness, and this mixture gave all that could be desired for the simple manufacture of the fabric. This was practically the process before the American War. In enquiring of some of the older weavers about here, I find that the average amount of size put on the warps was 7-20, i.e. 7 pounds of size to 20 of warp — and from the statistics I shall give, gathered from an inspection of the Register of Deaths of this district, I shall prove that the labor of that time was made less liable to phthisic than they are now. The usual of that is this — at that time there was a large amount of capital invested in the cotton trade, but it was chiefly in private hands, the competition was not nearly so great. But after the American War, many of these people flocked into the trade, immense capital went into the trade, immense profits were made. Then a large amount of competition arose, it was found that the large profits were dwindling down, the cloth had to be manufactured more cheaply. This was done by adulteration. It was observed that different kinds of size modes of mixing & applying it to the threads of the
though give to them properties which make the fabric when worn appear fuller & better; and now to suggest a state of perfection has this been carried that there are many in Lancashire who prefer that they can tell how much water a cloth contains by simply feeling it.

I shall now give the substances employed in making sizing matter, but it is difficult to ascertain the exact proportions as rigor can vary much in imparting information about what they consider a float of the trundle, we may divide the substances used into the following:

I For giving adhesive properties to the size
Wheat flour, tigo bran, maize, teaka, seerina, rice, starch, glucose, etc.

II To give weight & body to the size or flour
Soda ash, sulphate of ammonia, lime, magnesium, & soda, oxide of magnesia, soda, chloride of baryum;

III To give a glossy nature to either the size or flour
Tallow, bleached palm, coconut, castor, olive & other oils, shea butter, paraffin, naphtha wax;

IV Other substances used for giving weight & body to the size of flour
Chlorides of magnesium & calcium, glycerines of different kinds, grape sugar,
In preserving the eggs from mildew—
chloride of lime, carbonic, oxalic, & salicylic acids,
thymol, & salts of arsenic.
The substance with which these principally to
that is the china clay. This is an almost pure
hydrated silicate of alumina which in this
country is chiefly derived from deposits in Sinn-
shird Cornwall.

The following is the analysis of the china clay generally
used by tigers:

<table>
<thead>
<tr>
<th>Component</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alumina</td>
<td>40.03</td>
</tr>
<tr>
<td>Silica</td>
<td>46.47</td>
</tr>
<tr>
<td>Spide of Iron</td>
<td>0.38</td>
</tr>
<tr>
<td>Lime &amp; magnesia</td>
<td>a trace</td>
</tr>
<tr>
<td>Potash &amp; soda salts</td>
<td>1.24</td>
</tr>
<tr>
<td>Water, fluorsine &amp; organic matter</td>
<td>11.88</td>
</tr>
</tbody>
</table>

The clay is stirred in water before being mixed with the
other ingredients of the tinging mixture. The
warps are then drawn through this, and after sus-
penation are dried on hot cylinders and then sent
to the weaving shed. The amount of size put on to
the cloth has immensely increased of late years,
very much to the detriment of the threads. In some of
the mills in this district from 150 to 200 per cent is
just on, especially on what are called jezvans and on tying the manufactures with this collar
oration, they say that in the state of the market they
are obliged to do so, the cloth being principally
exported to China, India and Egypt where the
manufacturers will only give a small price for it because
they throw it away when they have used it for
turbans. Now in clothes never washing it, but simply
turning it on the other side. This cloth would not
stand washing because the dye is so lightly held
in the meshes that, after once washing it, it is
a network of visible holes.

The following is a mixture for heavy jezvans:

- Flour (2 sacks) = 560 lbs = 37.66 lb
- Clay (3 bushels) = 752 lbs = 45.19
- Tallow = 170 lbs = 8.07
- Chloride of magnesia = 75 lbs = 5.5

The only disease common to jezvans is scurvy of the
arms & lips, very much like growth of hickory. It
is well known that the condition of the atmosphere has a great
influence on the weaving of cloth. The temperature and
the amount of humidity making a great difference; it
further that the locality & surroundings of the shed have much
to do with it.

Some little time ago a number of experiments were made by Mr. Thompson of Manchester on the influence that water had upon certain threads. This point was tested by taking nine small threads of the same size. These were accurately weighed separately and each placed in a stopped glass tube. Some of these were put in a steam bath, dried, and replaced in the tube; some were placed over some water contained in a plate which was slightly warmed, and covered with a very little paraffin to allow them to absorb as much water as possible, and then put back in their stopped tubes; whilst the remaining three were left in the original tubes, thus representing the same in its natural condition. All these threads were broken by means of a pumice stone, each weighed, dried thoroughly, then weighed again, and the following weights of silk obtained:

<table>
<thead>
<tr>
<th>Original Weight</th>
<th>Condition</th>
<th>Pretreatment</th>
<th>Weighing</th>
</tr>
</thead>
<tbody>
<tr>
<td>33.21 grains</td>
<td>Natural</td>
<td>3.73</td>
<td>64.67</td>
</tr>
<tr>
<td>33.33</td>
<td>Distressed</td>
<td>17.39</td>
<td>69.26</td>
</tr>
<tr>
<td>33.85</td>
<td>Dried</td>
<td>2.35</td>
<td>39.99</td>
</tr>
</tbody>
</table>

Thus results those how weaving depends upon the atmosphere, and the position of the Silk, that a Silk situated in a Valley near a Stream would be
capable of producing much better cloth than one situated on a tile. In order to make provision for the changes in the weather the manufacturer has to produce artificial moisture heat, especially in frosty weather when the air is cold and dry. This is done by the blowing of steam into the looms, said by means of pipes just a little above the heads of the looms. On these pipes are a number of jets through which the steam is blown. When one thinks of a shed in which tall long numbers of people are congregated, the air being filled with particles of china clay moistened by the steam, then the day falling on the people they are whiter than milk, flying into every aperture it can find, mouth, nose, eyes, ears, one is not surprised at the large mortality caused by phthisis among the weavers, but rather that any of them escape. In the new miles there is an improved system of ventilation with fans; tubes for the operatives, accustomed to a temperature of at least 80° F, so they cannot bear the cold air, close the ventilators as soon as the workmen's backs is turned, this improvement is not so beneficial as it might be. There been in patients houses when they have come from these
from their clothes and a shower of dust that one might imagine a sack of flour had been thrown over them.

The two chief causes of the accidents in the weaving shed are—

First — The flying out of the shuttle.

The shuttle is made of lignum vitae, tapered at both ends, with pointed lips that, about one inch and a half in diameter at its center and about 12 inches long. Unfortunately in the present state of the machinery it is very easy to fly out of the shuttle race and often strike the weaver, very frequently in the eye, destroying the sight. There had been great misgivings of this sort, and from the great velocity at which the shuttle flies there is as a rule very little chance of saving the eye; happily as the injury is done by direct violence no sympathetic inflammation is in most cases set up in the other eye. The weavers well.

There are large numbers of people who still follow their employment fitted up with glass eyes to hide their deformity.

Secondly. The accidents caused by the picking stick.

The stick is attached to the loom by a head and
constantly moves backwards and forwards shaking the matter. In swinging backwards it projects into the alley between the looms, careful washing is necessary to avoid the blow of the threads which are in motion on both sides (especially in old factories when the alleys are rather narrow) but, as familiarity breeds contempt, the people forget about the shocks. The result is that they very often suffer blows, injured in several cases from lacerations of the hand or arm.

Shall now state the different processes of the cotton manufacture and have to a certain extent mentioned the injuries and some of the diseases to which the workers are liable. Shall now give the effects on the health of the people generally. States in regard to the other trades. Shall mention a few special points that affect the people in a different manner from the cotton trade.

If a stranger were coming into these districts for the first time and were to see the people coming out of a cotton factory the first thing that would strike him would be the general salubrity of the people, most of them looking cheerful, happy, and well off, but set with a sort of half-bloody look. He would notice the majority of the
of the men to be about the average height, though perhaps broad, yet with a shunted appearance. The women are well developed, many being decidedly good looking, having in great many cases long quantities of hair, but all with red cheeks. This pallor is especially observed in weavers, so much so that I think a person with a little experience could tell in most cases whether an individual is a weaver or not. One thing particularly noticeable about the young weavers is the fine shape of their hands, the possession of which is due to the kind of work on which they are employed, whilst it is also of great advantage as leading to increased dexterity in their operations. The people, the men especially, seem to become prematurely old. The women in many cases leave their work after they have borne two or three children, become stout, regain their colour, and are very often as little fretful. The children grow lose their freshness in the smiles, & the girls develop rather prematurely, the period of puberty generally being from 13-14, though in a good many cases Drane found it to begin at 11 or 12. The boys remain toil in the workshops for considerable time and often one is astonished.
in speaking to me to find he should be married and the father of a small family. The physique of the people has changed very much even in my life. I can remember, some three or four twenty years ago, when the whole of the Sunday morning in spring was taken up with bleeding people who came year after year, and examining the arms of elderly people. I often come across the Scene of the Canal. In the present state of the race I think transplantation would be more likely to answer than phlebotomy.

The Elementary Education Acts of 1874 and 76 are no doubt in themselves very good, but as in most cases of new legislation, it takes a considerable time to fit them into working order, and at the present there are several abuses which will have to be remedied. There is no doubt that the raising of the ages at which the children are allowed to begin work is an extremely good thing and will in time greatly benefit the race, but at present I am afraid this is more than counteracted by the over-pressure of work in the schools.

This over-pressure question has been laughed at, and it has been said that it is only a fallacy of a few people who are always finding some fault and other, but I think that if an impartial enquiry were made it would be found to be a fact and some
Of the first to acknowledge it would be the schoolmasters themselves. The great evil of the act is the payment by us all, and the schoolmasters, who are elected by the board, are obliged to make as many of their teachers efficient as possible, because if one school in a place pays less children than another the managers are dissatisfied and the spirit of the teacher fails short. I speak more strongly upon this subject because I have had several deaths in children from acute intemperies which could be referred to nothing else but overpressure, and they have all occurred in children of a nervous temperament immediately before an examination.

Take the following case: that of a man with a large family of small children. His brothers living nearest, the children are packed off to school when they are five years of age. The mother glad enough to get rid of them. They are kept at school the greater part of the day, there home lessons at night into very little time for play. As the parents wages are small the children first is generally of poor quality, chiefly consisting of tea bread, black pudding, very little milk. The parents are very anxious that their children should
Compassion. No
The people, constantly at work on the overburdened
vines, become tired and exhausted. Their
desire becomes capricious and there is a
constant desire for stimulants, which they usually
take in the form of tea; and I am certainly
within the mark when I say that the average
amount that a person will drink in a day
is three or four pints. The tea is generally strong;
blotch is very often well stewed. Parts of the
harvest absorption with great care are very
favourite articles of diet; but when the food
is not such as to render digestion easy,
the amount of her tea swallowed destroys the
tooth of the teeth, and the dust from their
wines and the amount of dust to that they eat;
this causes the teeth to decay, and it is quite
a rarity to be a person of 20 years of age with
sound teeth. A dentist in this neighborhood
told me a little time ago that, although he only
charges 10.0 for extracting a tooth, his income
from that time and the making of artificial teeth
amounts to £150. He makes on an average
84 complete sets and 165 partial sets per year,
as one benefit people from their mode of
Living the people suffer very greatly from dyspepsia, and I am told that above one half of the cases one has to treat are of this nature. I was speaking with a man who was parish surgeon at the time of the action of famine and was surprised to hear from him that the rate of sickness during that time was not nearly so great as one would have believed. He accounted for this by the people having had to fall back upon their old diet of porridge milk.

Just turn to the amount of sickness we have. There is no doubt that this disease especially attacks the elder women. There is a table of the percentage of deaths from phthisis which have happened since the year 1852, taken from an examination of the Register of Deaths.

<table>
<thead>
<tr>
<th>Date</th>
<th>1852-60</th>
<th>1862-65</th>
<th>1875-84</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of total deaths due to phthisis</td>
<td>9</td>
<td>13</td>
<td>9</td>
</tr>
<tr>
<td>Percentage of deaths from phthisis</td>
<td>20</td>
<td>40</td>
<td>60</td>
</tr>
<tr>
<td>Percentage of cases with phthisis</td>
<td>23</td>
<td></td>
<td>10</td>
</tr>
</tbody>
</table>

These figures fully bear out my statement about the increasing mortality amongst women, incidentally that the immense improvement effected by the stopping of the card and iron machinery.
There is no doubt that the large amount of phthisis amongst the opium smokers is due to the heavy fumes of tobacco. I attribute the chief part of the mischief to the China clay. The clay acts in a purely mechanical way, for settling on the lungs by its irritation it sets up phrenocoria which frequently degenerates into phthisis. I have examined spectra from phthisical cases and certainly think that the clay can be seen in it, though it being an amorphous substance it is difficult to demonstrate. There has not been sufficient length to obtain any post mortems, as the people object, but I am very much inclined to think that the clay would be found deposited in the lungs in the same manner that coal is in coal miners phthisis.

There are two other affections which I think are produced by the dust in the mines:

1. A kind of dry cough of the outer mucous in which there is generally an absence of copious mucus and pasteboard it become covered with any scale epithelium, causing a considerable amount of dyspnea and irritation.

2. Hitalhmic, which very often occurs in the children born after they begin to work.

Phthisis is frequently met with, especially
in my first walking when there is poured into the room of the floors are watered to moisten the air to lay the dust. The people have often told me that they feel the effects at once.

In this meal with many cases of Bright's disease. Generally in those who, coming out of their hot workshops into the cold air, take no care to wrap themselves up.

The general death rate 1853-63 was 25.8 per thousand from 1873-85, 22.63 per thousand so that the mortality has certainly increased to a great extent but the death rate is practically the same. This is accounted for in a great measure by the drouth in infant mortality.

Now I intend mentioning a few facts about the health of the women. As said the menstruation period comes on rather soon many of the girls are very thinly developed. As soon as possible they begin full work and are just as good if not better workers than the men, especially the women, and it is not uncommon for a girl of 16 or 18 to run four terms, while is a man a full work. The result of this is that the room strain in the hot rooms produces a great many rickets, in fact it is the chief disease that we meet with in young girls. Where times
are good the first thing they think about is getting married, and as a young couple could make from two to three pounds a week, they very soon begin looking for themselves. In fact the general complaint of the women is that as soon as their children get pasted as full time, they think it is time for them to begin counting.

I must say that the percentage of illegitimacy is not large considering the crowding of the bays together being only 6.2 per cent, while that of the whole of England 6.4 per cent. This low rate may be accounted for by the fact that most of the early marriages are hastened by previous pregnancy.

After marriage, the women continue to work in the mills through pregnancy. The result is a large number of abortions which generally occur at the third month. This is to commence a theory that many of the women think nothing about it and begin working again in a day or two.

We find a large number of abnormal deliveries. Among the last seven years there attended about 900 cases, giving the following:

<table>
<thead>
<tr>
<th>Abnormal Delivery</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instrumental Delivery</td>
<td>16 per cent</td>
</tr>
<tr>
<td>Placenta Previa</td>
<td>1.5</td>
</tr>
<tr>
<td>Adherent Placenta</td>
<td>2.5</td>
</tr>
<tr>
<td>Perforated Constriction</td>
<td>6</td>
</tr>
</tbody>
</table>
In a great many of the cases in which there applied force they found cephalic contraction inferior-posterior diameter of the brawn outlet, and sometimes approximation of the occipital-infraorbitals. The result of this is that the head, after being disengaged from the brawn does not come into the cavity. The presentation is very often right occipito-anterior. The cause of the contraction of the brawn cannot be understood from the woman being to carry such heavy weights when they are children before the bones are completely ossified. The postum probably becomes tilted forwards by a slight degree of spinal curvature due to the constant bending and leaning forward over their work. The type of pelvis to a certain extent resembles the funnel-shaped pelvis in the lower part while in the upper part it tends to the rectitude. The conclusions to which I have come in this matter are these—that the contraction at the brawn is caused when they are children, and that the lower deformity is caused by what Playfair describes as the cause of the funnel-shaped pelvis, i.e. an advanced condition of ossification or a pelvis which would otherwise have been infa-tile, brought about by the development of
Of unusual conclusiveness, corresponding to the
laborious employment of the individual.
Cases of retained placenta were not mentioned as
abnormal because they are so numerous that one
cares to look upon them in that light. They are
generally due to midwifery juggling on the cord,
which causes hasty contraction. If it were
quite natural that when there is so much con-
natural labour there are a great number of dis-
placements of the uterus the most common of which is
prolapse! This occurs generally in women who
have had large families. Troubles there at
the change of life. This is often due to the small
amount of care the women take after their con-
finements, often sitting up on the third day.
Should think if a census of all the women
from 20 to 40 years old a very large proportion
would be found to be wearing garters of some
type.

As an overall effect from the kind of midwifery there
is a considerable amount of infantile mortality,
but it has decreased considerably from what it
was 30 or 40 years ago. The percentage of deaths
from convulsions is very much above the average,
and to a great extent can be accounted for by
The abnormal births, though there are other causes, improper feeding being one of the chief. It is very unusual for babies to be fed with tea instead of milk, and tea soaps are quite an institution.

We got many cases of infantile disease of the ordinary types; a fair proportion of hydrocephalus (have had to perform craniotomy five times), and a large number of cases of curvature of the spine for which during the last few years I have applied between 300 to 400 cases of plaster.

In spite of all this, infant mortality is not nearly as great as it used to be.

<table>
<thead>
<tr>
<th>Year</th>
<th>Infant Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>1852-66</td>
<td>69.5%</td>
</tr>
<tr>
<td>1860-65</td>
<td>50.5%</td>
</tr>
<tr>
<td>1865-75</td>
<td>40.0%</td>
</tr>
<tr>
<td>1875-84</td>
<td>30.0%</td>
</tr>
</tbody>
</table>

If these deaths the percentage from convulsions is as follows

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1852-60</td>
<td>30%</td>
</tr>
<tr>
<td>1860-65</td>
<td>35%</td>
</tr>
<tr>
<td>1865-84</td>
<td>31%</td>
</tr>
</tbody>
</table>

I wish now to mention a few points connected with the other illnesses of the County.

In the woolen trade the most trying sickness is a modified form of wool-sorters disease.
which occurs in the teats of the cow. It
takes very like malignant jaundice, and if
taken in time free opening with the knife and
washing with a point of caustic soda it. If not
taken in time it gives rise to a kind of slow blood
poisoning forming multiple ulcers in the
hand and arm, though as a rule it is not fatal.
As far as I can find, the worst that comes from the
cow and is dead in the most dangerous, but
from the disease is very much milder than
the worst-tolerated disease of Yorkshire.
Another point is the commonness of wooden
weavers from phthisis. In looking over the register
not above 2 percent of the deaths from phthisis
were in wooden weavers. The wood contains a
large amount of natural spirce, and in the
grounds of manufacture there oil is found on.
There had several cases of phthisis in cotton
weavers I having advised them to leave
the cotton and try the wooden work. I have
found their clothes to dry up, and they have
put on flesh and felt better in every way.
Whether this is due to the removal from the
snuff or to the action of the oily material
amongst which they work I cannot say.
but it seems both greatly conducs to the weak.

To Wood of Walsfield who has eaten anger
of many years, principally in written fiction.

It seems that the oil has a most beneficial effect
on the people. It has often been children coming
from poor districts and suffering insufficient food,
become guilty fat and plump after working
for some time amongst the crowd.

The next important trade is Turkey Pie Baking. The diseases have been most
amongst the agers are a kind of irritable
regnum, of a very considerable amount
of pruritus. The old agers say it has come
of late years, since the system of baking has
been altered. Formerly they aged the cloth
wound blood and the use of sheep's lips as
a substitute for the alizarine. The lesion in
general was good at that time; although children
might often be seen eating their Bureau in
the midst of all the folk, they were never
a bit the worse. Now they dip the threads
before wearing of fig the dye with bisulphate
of arseniate of soda which I think must be
the cause of irritation.

The last point I have to mention is
The small amount of local mines' stone-dust.

The coal mines instead of being sunk.

Any shafts we run into the sides of the hole.

And the mines are very cold. The coal being

Make very hot if you about much as dust.

There are no accident from effusions of

Fog-damp, only occasionally we have black

damp. (CO₂). The stone got from the

Quarries. While these are great numbers

Is a kind of hard stone or flag stone, used

for paving; it is a hard, damp, stone, thick

in layers, producing very little dust.

And I am sure that the quarrymen when

They will let down alone are by far the

Finest and healthiest men we have in this

neighborhood.

They now furnish any account of the

effect that the trade of mode of living have

upon the health of the coal people and I

Think there is no doubt that the cotton

trade is the most hurtful. Knowing all

true facts one is led to the necessity of

an inquiry into the whole subject that

the abuses may be remedied and the health

of the people increased.
The measures which I think might do some good are as follows:—
1st. the abolition of heavyrying, & the thorough ventilation of factories;
2nd. increase in the number of Inspectors of Factories so that the laws may be properly carried out; at present they are very much overcrowded;
3rd. the appointment of Military Surgeon & Medical Officer of Health to be combined; the holder of such an appointment to be barred from private practice;
4th. the establishment of gymnasiaums of public play grounds for the whitest children;
5th. teaching a system of domestic economy in the schools;
6th. cheap public health lectures for women, something like the Gildedist, or Ambulanda lectures, to be held in every town, where by payment of one penny nurses might learn a few of the simple laws of health.

My ideas on the subject may be slightly Utopian, but I am certainly of opinion that if true improvements could be carried out we should find the people regaining ret
their former development perhaps, as they
live in towns, but becoming much stronger
and more fitted to cope with the duties
of their calling.