Children's Employment Commission.

REPORT by CHARLES BARHAM, ESQ M.D.,

on the Employment of Children and Young Persons in the Mines of Cornwall and Devonshire, and on the State, Condition, and Treatment of such Children and Young Persons.

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TO HER MAJESTY'S COMMISSIONERS.

GENTLEMEN,

1. The Mining District of the West of England, concerned in the following Report, extends from the South-Eastern borders of Dartmoor in Devonshire to the Land's-End in Cornwall, a distance of about 100 miles. Its breadth is very variable, but the principal mines constitute, through the greater part of this distance, a narrow chain, the links of which are separated here and there by short intervening spaces of an exclusively agricultural character. For the purposes of this inquiry it will, however, be convenient to associate these mines in four distinct groups, which may be designated respectively, the Devonshire District, and the Eastern, Central, and Western Cornwall Districts. It is in the extreme peninsula of England, within 30 miles from the Land's-End, that the mines are aggregated the most closely.

2. The condition of the children and young persons engaged in mining labour is the immediate subject of this Report; but their condition is too intimately mixed up with that of the adult miners to be well understood without some preliminary consideration of the latter. This will again be greatly assisted by a knowledge of the physical conditions of the mines and minerals, the places in which, and the materials on which, both classes are employed. These subjects shall therefore be first noticed, in the order now indicated.

3. The mining district of the West of England may be considered to commence at Dartmoor, and terminate at the Land's-End. The surface is gently undulating, the loftiest hills rarely exceeding 1000 feet above the sea, whilst the greater number of them range from 500 to 700, and the plains at their bases are in general from 100 to 200 feet above high water.

4. The highest peaks are for the most part granite, whilst the lower hills and most of the plains consist of various descriptions of slate. The granite may be considered to present six patches of large dimensions, viz., Dartmoor, the neighbourhood of Rough-tor and Brownwilly, the Hengsbarrow [sic] district, the Cairn Brea [sic] range, which is separated from that of Wendron merely by a narrow slip of slate near Pendarves, and lastly, the western tract, which extends from St. Ives to the Land's-End. There are, however, three minor bodies of granite, namely; Kit-hill, Breage, and St. Michael's Mount - in addition to the six larger, besides small specks of the same rock, in two or three other localities. All the other parts of Cornwall (except the Lizard district, which is of serpentine) may be considered to consist of slate of various kinds.

5. The granite is, in general, coarse-grained, and of porphyritic structure; its constituents are felspar, quartz, and mica; but in some places the mica is replaced by talc, and the rock is then often removed as china-stone, or the felspathic portions of that which is decomposed are washed out and prepared as porcelain-earth* for the manufacture of earthenware. In some of the granite schorl abounds.

6. The slates are in general felspathic, and near the granite their structure is often compact, whilst at greater distances they become lamellar and schistose in their structure, and still farther off they become fissile, and make excellent roofing-slates; among these last organic remains are sometimes found.

7. The laminae of the slates usually dip from the granite, round the flanks of which they are thus somewhat symmetrically arranged ; and it has been well ob-

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* In the year 1838 about 28,000 tons of china-stone and porcelain-clay were exported from Cornwall to the Potteries.

served that the granitic peaks rise like islands in an ocean of slate. The range or bearing of the masses of granite is somewhat about north-east and south-west, and the mines occur on both sides of it.

8. Both the granitic tracts and the slates in their vicinity are intersected by veins or dykes of a porphyritic felspar rock (provincially called *elvan).* These veins have in a few cases been traced for miles, and they pass uninterruptedly through both granite and slate; their usual direction is about 20 degrees south of west, and they are generally several fathoms in width. Where they fall in contact with the veins, their general comportment is much as if they had been portions of the strata.

9. The more schistose varieties of the slate formation, at considerable distances from the granite, frequently contain beds of limestone; these sometimes coincide in position with the slaty laminae, but they are more generally irregular and uncomformable.

10. The metalliferous veins (or *lodes* as they are provincially called) have an average direction of four degrees south of (true) west; but the general bearings are not quite the same in various parts of Cornwall; those of St. Just, for example, run about 35 degrees north of west. Indeed in the same district, and even in the same mine (as at Dolcoath, East Wheal Crofty, &c.), there are often two series of *lodes*, one of which bears nearly east and west, whilst the other (usually called *counter-lodes*) bears about south-east and north-west.

11. The dip or inclination of the *lodes* may, on an average, be about 60 or 70 degrees (from the horizon), and perhaps four out of six of them incline towards the nearest mass of granite; it also appears that the *lodes* near Dartmoor are for the most part flatter than those in the west of Cornwall. Taken on the whole, the *lodes* appear tolerably straight, both in direction and also in inclination; but when they are examined in detail, it will be found that they exhibit almost continual curvatures or irregularities in both respects; still, however, these flexures seem projected on certain lines, which have considerable constancy.

12. The width of the *lodes* is on the average about three feet and a half, but in this respect there are very great irregularities; from a mere line to 40 or 50 feet, and sometimes even more. But though there are great and rapid fluctuations, each *lode* seems to have a sort of natural or usual breadth of its own.

13. The compositions of the *lodes* are as variable as the natures of the rocks through which they pass. By far the greatest part of them is, however, earthy matter, of the nature of the contiguous rock, but also containing large quantities of quartz. These ingredients are sometimes in separate veins, but for the most part they are mixed without regularity or order, and through them the metallic ores are dispersed; sometimes very thickly, or in large irregular lumps, connected with each other by small veins of ore; in other cases the ore is very sparingly sprinkled through the whole of the earthy matter of the vein, and in some rare instances the ore forms the larger part of its contents. The masses of ore in the *lodes* usually dip from the granite, and the deepest parts of the mines are therefore in general farthest from where that rock appears at the surface.*

14. There is a second series of veins which run nearly at right angles to the *lodes*, and which are called *cross-courses* when they are composed of quartz, and *flucans* when of clay. The general directions of these cross-veins are somewhere about south-east and north-west. Their dimensions are variable, being perhaps on an average about two feet: their dip too fluctuates, but as a general rule it is greater (from the horizon) than that of the *lodes*. It has been already mentioned that quartz and clay form the larger part of their ingredients: this clay is invariably of the same character as the contiguous rocks. Tin and copper ores are occasionally found in small quantities in the *cross-veins*, and in two or three instances silver and its ores have occurred to some amount. The chief metallic produce, however, of this class of veins, is lead-ore, but this they seldom yield in the neighbourhood of *lodes* which have been productive of other metals. Indeed it is a general law in Cornwall that two series of veins at right angles to each other are seldom found productive in the same district.

15. Both the *lodes* and cross-veins ramify and divide; and whilst the part which in one place is large will sometimes within a short distance dwindle and die away, the portion which is small where the other is rich will often within a small space enlarge and become productive.

*In a large proportion of cases, the upper part of fissures in which metalliferous veins occur is, or has been, occupied by an iron-ochreous substance named *gossan,* often containing tin, and commonly having certain characteristic appearances, from which the experienced miner infers the quality of the copper lode on the top or *back* of which this gossan lies.

16. As these two series of veins run at right angles to each other, they of course frequently meet and intersect. There are a few cases of the *lodes* traversing the *cross-veins,* but in by very far the larger number of instances the *cross-veins* cut through the *lodes.* Occasionally the *cross-vein* simply intersects the *lode;* but more generally a displacement attends their contact: the separated portions of the *lodes* not occurring exactly opposite to each other on both sides of the *cross-vein.* These displacements are provincially called *heaves,* and though they are usually for only a few feet or fathoms, yet some cases are on record where the discordances are 20, 30, and 40 fathoms, and in one instance so much as 72 fathoms. It is not easy to lay down a rule for the discovery of the second portion, but it is perhaps rather more frequent to discover it on the side of the obtuse angle formed at the intersection than on the acute. It is obvious that, on whichever portion or the *lode* we approach the *cross-vein,* the other part will be found towards the same hand; the separated portions are perhaps more commonly found towards the right hand than the left. These *heaves* are the most intricate and baffling phenomena with which the Cornish miners have to contend.

17. There is also a third series of veins (bearing parallel to the *lodes),* which are generally of small size, and consist of clay, which are called *slides.* These are confined to the slate districts, and are seldom metalliferous. They intersect the *lodes* on the lines of their inclinations, and seem to cut off their lower from the upper parts, and produce similar displacements vertically to those which the cross-veins occasion horizontally.

18. Taking the granite and slate with the *lodes* which traverse them on a large scale, it appears that by very far the largest part of the tin-ore obtained in the West of England is from *lodes* in the granite, and that of copper-ore from veins in the slate. It however appears that the richest individual masses of tin-ore yet discovered have been in slate, whilst the *bunches* of copper ore which have been found in the granite have in a few instances been as large as the very largest which have occurred in slate.

19. It is a prevailing and apparently well-founded opinion among practical miners that the *lodes* are usually most productive near the junction of the granite and slate rocks. Accordingly the mines, instead of being irregularly distributed over the face of the country, are clustered together near the lines of these junctions, and the heaps of worthless rubbish separated from the ores may be traced in such situations for considerable distances on the lines of the chief *lodes,* rising in some cases amid rich fields, and destroying the vegetation "like streams of lava from a volcano."

20. The St. Just mines form one group near the Land's End, those near St. Ives another, at the opposite ends of the same granitic mass; those of Breage a third, subordinate to the granite of Godolphin and Tregoning hills. The Crowan and Gwinear mines stand at the western extremity of the Cairn Brea [sic] and Wendron granite; whilst those of Camborne and Redruth skirt it on the north, and those of Wendron on the south; and the Gwennap district occupies its eastern flank. In like manner, the St. Agnes mines are many of them located near a small patch of granite at Cligger Point, those of St. Austell are grouped on the skirts of the Hengsborough [sic] granite; whilst, the mines near Callington and Tavistock are contiguous to the Kit-hill and Dartmoor ranges.*

21. Tin-ore is also found in deposits, generally considered diluvial, mixed with the debris of different rocks, and often covered with an alluvial bed. Repeated washing, by means of running water, being the chief process to which such tin is subjected, the designation of *stream-work* is commonly applied to this method of obtaining the ore. In a solitary instance at Carnon (Evidence p 836, 1. 7), this stratum of tin-stuff is removed by subterraneous excavation; the alluvial bank, or overburthen, which is usually taken off from the surface, being in this case too thick to admit of such a process, and being likewise covered by the sea at high water.

22. Mines of iron[†] and manganese,[‡] giving employment to a considerable number of persons, fall also within the district above defined. Of the iron-mines those

* I am indebted for the foregoing account of the mining district to Mr. *W.*J.Henwood, F.R.S., a gentleman whose investigations into the details of the physical conditions of the mines concerned have been probably more minute and accurate than those of any other individual. For a more particular statement of the peculiarities of the lodes in the different districts we may refer to Mr. De La Beche's *Report on the Geology of Cornwall, &c.,*1839.

[†] The quantity of iron-ore raised in Cornwall was calculated three years ago to be about 30,000 tons annually: it has since increased.

[‡] The quantity of manganese raised in Cornwall has been recently computed at from 700 to 1000 tons per annum. The price of average ores about *£7* per ton. A larger quantity is probably raised in the mines in Devonshire.

near Lostwithiel are the most important. The ore lies in a vein which is nearly vertical, and of an average thickness of ten feet. The greater part of this mine is worked open to the surface, and the access to the underground part is by levels. The greatest depth does not exceed 50 fathoms. The manganese-mines, which are chiefly situated on the borders of the two counties, are likewise very superficial; the workings being seldom carried more than from 20 to 30 fathoms from the surface. Antimony has also been raised to some extent, but the foreign ores of this metal have of late years almost monopolised the market, and it is believed that very few children or young persons are now employed in its production.*

23. The mines of tin, copper, and lead, with the latter of which metals silver is generally united, are those which present the characteristic features of the mining of the West of England, and they employ at least nineteen-twentieths of the young people who are engaged in this kind of labour. The following introductory remarks will therefore be chiefly descriptive of the works for the raising of those metals.

24. When it is known or is thought probable that a lode which will repay the cost of working exists in a particular locality, the usual course of proceeding is to sink a shaft vertically to a certain depth in the first place. In so doing the lode may be met with, or as it is termed "cut." If this is not the case, a gallery, or "level", is excavated (driven) at right angles to the shaft, in the assumed direction of the lode, and continued till it is reached. In either case, when the lode is reached, a level is driven horizontally along its course, and the miner then works upwards, and removes it from above. It must depend on the thickness of the vein, and also in some measure on its inclination, whether it is necessary to excavate any of the adjoining rock, and to what extent. Meantime, the shaft being sunk still deeper, another gallery or level is carried along the vein or lode, usually about ten fathoms below the former one, and the metalliferous stone intervening between the two levels is subsequently removed. This process is repeated again and again; and as the workings become more extensive in length, additional shafts become necessary in that direction. Horse and water power are employed for effecting the earlier operations, but the steam-engine is soon requisite in most of these mines, and as they increase in depth and extent more powerful machinery is needed to raise the excavated rock and the water. Shorter shafts, called *winzes,* are also formed at intervals between the levels, chiefly for the purpose of ventilation. It is clear that in proportion to the dip or inclination of the vein there will be an advance in a horizontal direction, as the depth of the workings increases; and this may also render necessary communications from the lower levels to the surface more direct than can be furnished by the shafts originally adapted to the shallower ones.

25. At a very early stage of this progress a separation is established between the shafts by which the men pass to and from their work and those in which machinery is employed. This separation is in the first place effected by the boarded division of a single shaft, and subsequently by the devoting distinct shafts to these distinct purposes. Excepting the occasional raising of men and boys in buckets through short distances, ladders are the universal means of ascent and descent in these mines. Many of the shorter shafts (winzes) are provided with ladders, so that the course taken by the miner is commonly not one of continuous descent and ascent, but varied by his traversing at different intervals a considerable length of horizontal galleries.

26. The particulars of these arrangements will be much more clearly understood by a reference to the Plans (Nos. 1 and 2) than from verbal description. The dark patches show the portions of the lode which have been removed in the working of the mine. The excavation in these parts may be either still progressive, or it may have been discontinued from the poverty of the lode, whether absolutely, or relatively to the price of ores in the market, or comparatively with the quality of what can be obtained in other parts of the mine.†

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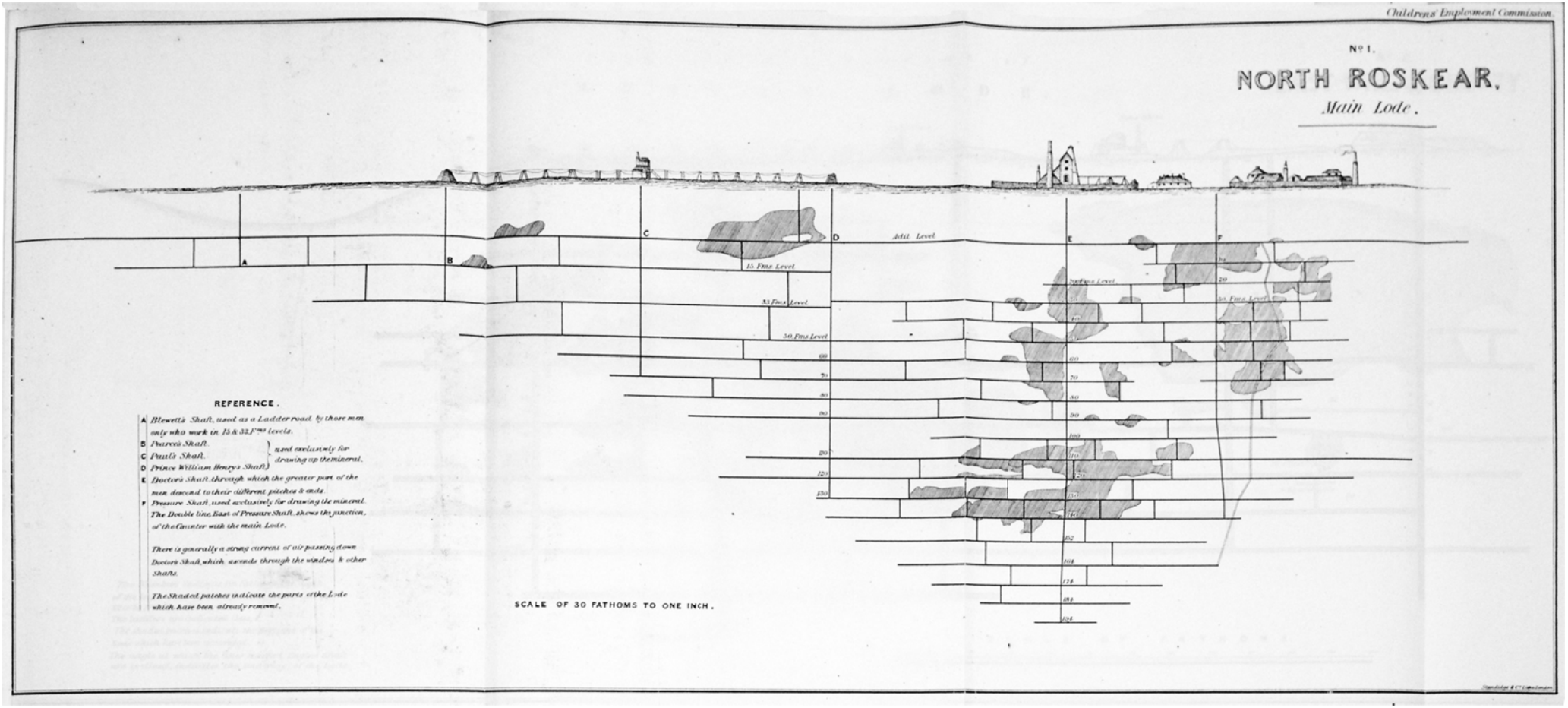
* Mr. De La Beche, in his *Geological Report,* has estimated the mineral exported produce of Cornwall and Devon, in 1837, as follows:

Copper	£952,855
Tin	415,518
Manganese	40,000
Lead	3,600
China-Stone and Clay	43,000
Granite	24,500
Total .	£1,478,973

† It is a common practice, in the larger mines especially, to leave portions of good ore here and there unexcavated. Such patches, often termed "the eyes of the mine" may be had recourse to when the produce from other parts is deficient, or when the market is favourable. They constitute, in fact, a sort of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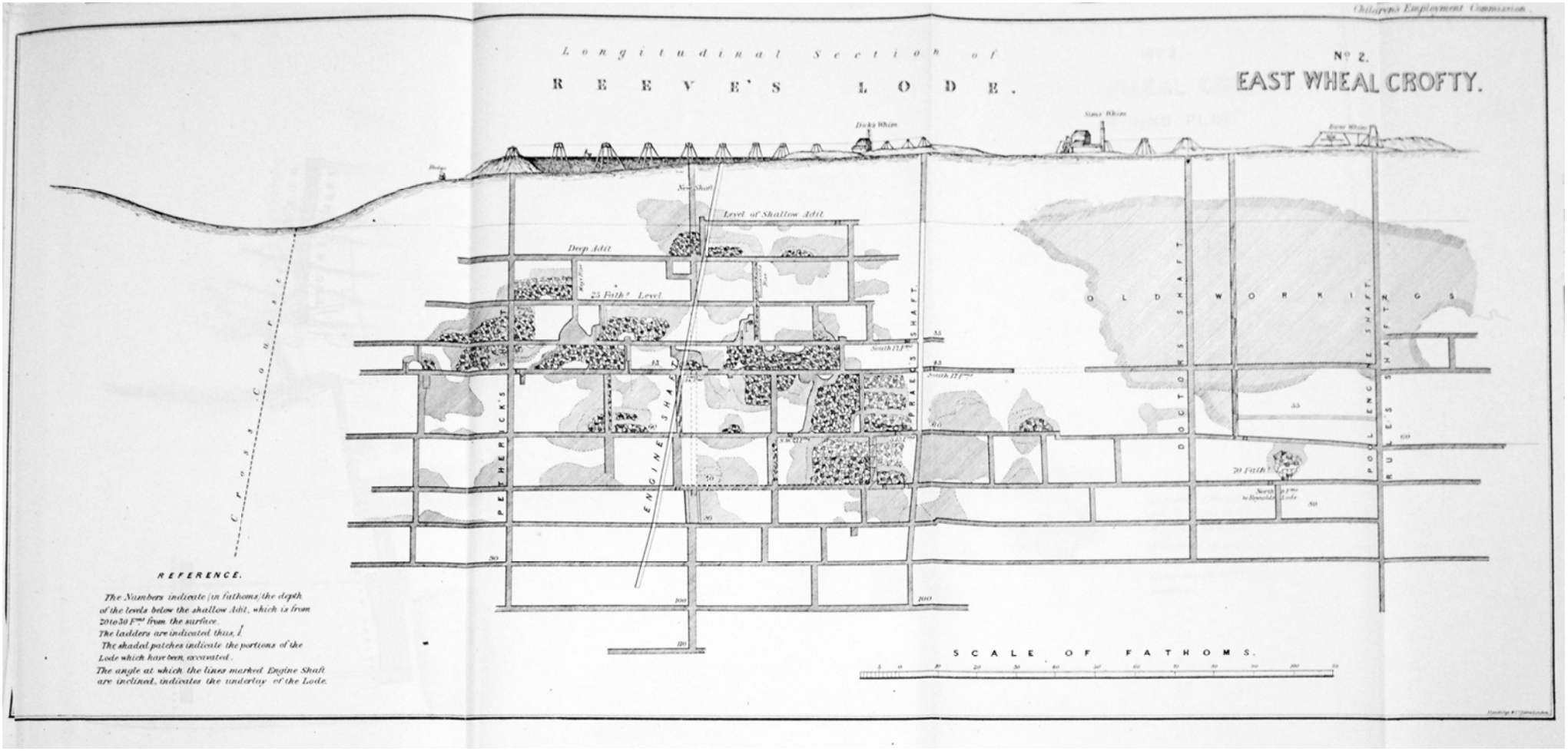
Nº 1.
NORTH ROSKEAR.
Main Lode.
A
B
C
D
E
F
Adit Level
15 Fms Level
33 Fms Level
50 Fms Level
REFERENCE.
A Blewett's Shaft, used as a Ladder road, by those men only who work in 15 & 32 Fms levels.
B Pearce's Shaft. } used exclusively for
C Paul's Shaft. } drawing up the mineral.
D Prince William Henry's Shaft.
E Doctor's Shaft, through which the greater part of the men descend, to their different pitches & ends.
F Pressure Shaft, used exclusively for drawing the mineral. The Double line, East of Pressure Shaft, shows the junction of the Counter with the main Lode.
There is generally a strong current of air passing down Doctor's Shaft, which ascends through the windlass & other Shafts.
The Shaded patches indicate the parts of the Lode which have been already removed.
SCALE OF 30 FATHOMS TO ONE INCH.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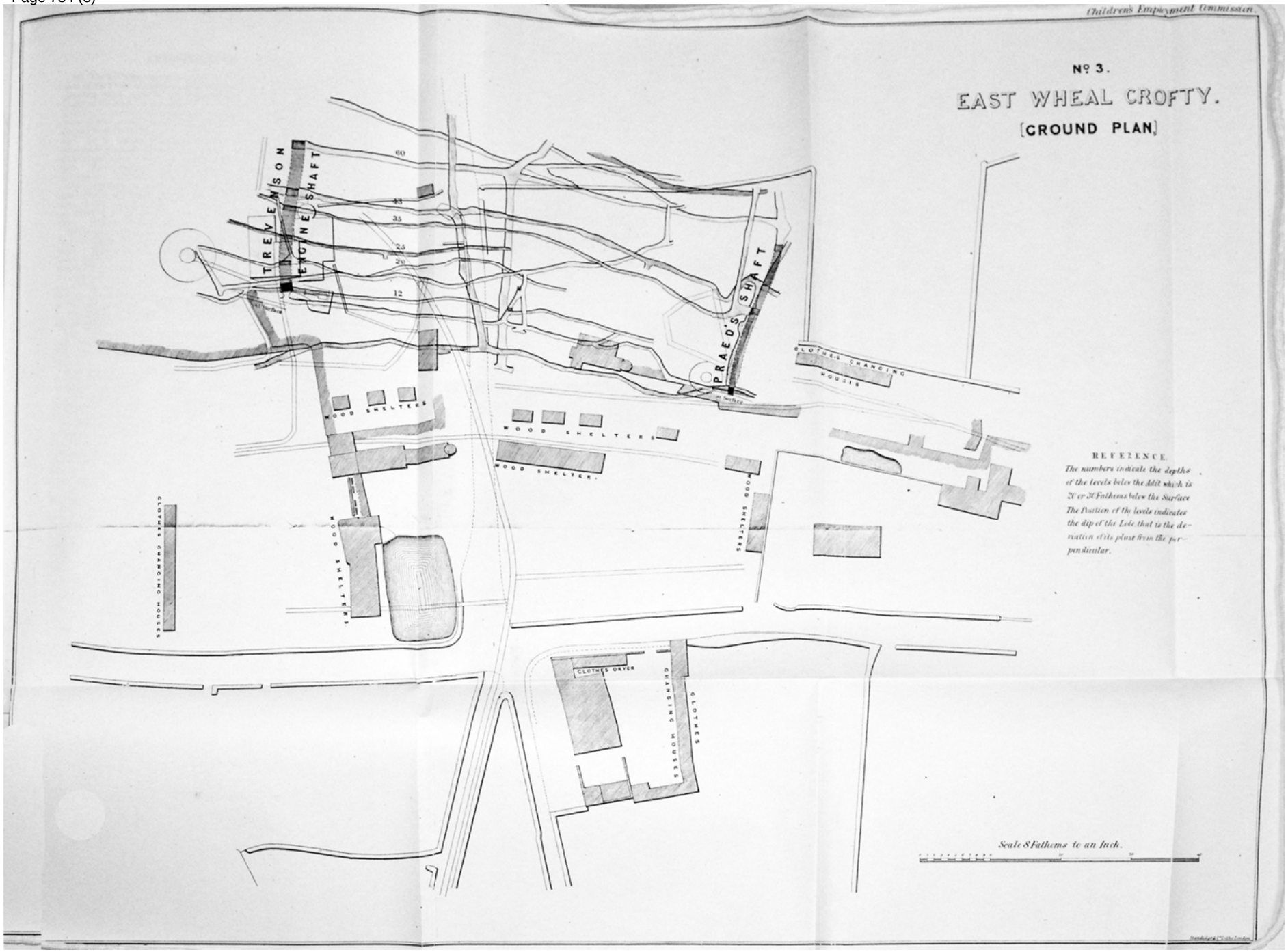
Longitudinal Section of
REEVE'S LODE.
No 2.
EAST WHEAL CROFTY.
Dicky Whim
Stamp Whim
Engine Whim
New Shaft
Level of Shallow Adit
Deep Adit
25 Fath.m Level
PETHERICK'S SHAFT
ENGINE SHAFT
PRAED'S SHAFT
South 17 Fms
DOCTOR'S SHAFT
OLD WORKINGS
POLLENCE SHAFT
RULE'S SHAFTINGS
70 Fath.m Level
Cross Course
REFERENCE.
The Numbers indicate (in fathoms) the depth of the levels below the shallow Adit, which is from 20 to 30 Fms from the surface.
The ladders are indicated thus, |
The shaded patches indicate the portions of the Lode which have been excavated.
The angle at which the lines marked Engine Shaft are inclined, indicates the underlay of the Lode.
SCALE OF FATHOMS.


Children's Employment Commission.
Nº 3.
EAST WHEAL CROFTY.
(GROUND PLAN.)
TREVENSON ENGINE SHAFT
PRAED'S SHAFT
60
43
33
23
20
12
WOOD SHELTERS
WOOD SHELTER.
CLOTHES CHANGING HOUSES
CLOTHES DRYER
CLOTHING WORKS
CLOTHES
REFERENCE.
The numbers indicate the depths of the levels below the Adit which is 20 or 30 Fathoms below the Surface
The Position of the levels indicates the dip of the Lode that is the deviation of its plane from the perpendicular.
Scale 8 Fathoms to an Inch.

27. The following answers to the printed queries will serve to show the dimensions of the levels in different mines, and the method of excavating the ores. The questions which apply to this department are:

5. What is the smallest height of the levels in your mine?
6. What is the thickness of your bed or vein of ore?
7. Are your workings, heads, or ends of the same depth with the beds or veins of ore, or do you cut away any of the top and bottom?
8. How many fathoms from the surface of the ground or from the adit is the ore you are working?

(*a*) In Carnon Mine, from which a horizontal diluvial bed of tin-stuff is removed, two parallel galleries have been driven on the course of the bed, and communications between these, at right angles, have been made by levels here and there. The answers are:

5. Five feet.
6. Three feet.
7. Cut away both top and bottom.
8. Thirteen fathoms from the surface of the ground.

As a specimen of another shallow mine, Restormel iron-mine (*b*), which has been already mentioned, may be brought forward. The answers are:

5. Six feet.
6. Ten feet (average).
7. The vein is nearly perpendicular; the levels are driven on it, and the back (the part towards the surface) and bottom taken away.
8. From 10 to 50 fathoms.

But these are exceptions among the West of England mines. The returns from St. Ives Consols *(c)* will illustrate the character of the greater part of the tin-mines in these particular respects:

5. Seldom less than 6 feet.
6. From a few inches to 10 feet, and sometimes more than double that width.
7. The lodes in this district enter the rock at the surface or thereabout, at an angle of 50, 60, or 70 degrees from the horizon, and sometimes almost vertical, and the lodes, or veins of ore, from any given level to another, if productive, are regularly cut away, after first supporting the sides and roof of the level with framework fitted to the angle of the lode, which in few cases proves otherwise than completely safe and secure.
8. Working at the 30, 40, 50, &c., and downwards to the 147 fathoms level. The adit 20 fathoms.

The Charlestown tin-mines (*d*) will furnish an example from the Eastern Cornwall District:

5. Seven feet high.
6. From 3 to 10 feet wide.
7. Drive the levels first and afterwards take down the back.
8. At the adit, and 75 fathoms below.

Some examples of copper-mines may now be given. In the Central District the answers for the United Mines *(e)* are as follows:

5. The levels in the ancient working of the mine do not exceed 5 feet high by 2 feet wide; but those made more recently are about 7 feet high and 4 feet wide.
6. The veins are nearly perpendicular, and vary from one inch to 9 feet wide.
8. The ores are got from between 40 and 220 fathoms of the surface.

For the Consolidated Mines (*f*), in the same district, the deepest of any, the returns are these:

5. Six feet high and 2½ feet wide. The openings in the platform from one ladder to the other 18 inches by one foot.
6. Varies very considerably; sometimes 8 feet, at others a few inches only.
7. Our veins do not incline much from the perpendicular; consequently we drive our levels 6 feet high, and work the ground above afterwards.
8. Sometimes ore is found much nearer the surface than the adit level. In general we are working for ore from 20 fathoms to the surface to the 260 fathom level below the adit; the deepest point being nearly 300 fathoms from the surface.

From the Levant (*g*), the largest copper-mine in the Western district, the answers are:

5. Height of all our levels is 6 feet; and from thence to the next level is 10 fathoms or 60 feet.
6. Thickness or width of the whole vein wherein the ore is found is on an average about 4 feet.
7. Our vein is almost perpendicular, a small declination only, and we work by the side of it first, then take it down afterwards.
8. Adit, or sea-level, 30 fathoms under surface. Under adit we are working from 70 to 230 fathoms deep.

In the Eastern Cornwall District the Fowey Consols *(h)* is the most considerable copper-mine; the answers are these:

5. Not less than 6 feet, and full 7 feet or more where air-pipes are required for ventilation. There are no horseways in Cornish mines.
6. Above 20 lodes, fluctuating in thickness front 8 feet big to only a few inches.
7. If the lodes be perpendicular, and of a sufficient size for the levels to be driven, we have no occasion to break or cut away any of the overlay or underlay; but very rarely a lode is perpendicular.

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reserved fund. Plans and sections of Dolcoath and Fowey Consols Mines are given in Mr. De La Beche's *Report on the Geology,* Those appended to this Report were obligingly furnished, for East Wheal Crofty and North Roskear respectively, by Mr. Phillips of Tuckingmill, whose school is spoken of in the Evidence, and by Mr. Vivian, lately a pupil in Sir C. Lemon's Experimental Mining School.

8. All depths from the adit to nearly 200 fathoms below it, and some above the adit, and even to within a few fathoms of the surface. The adit level under the principal parts of the mine is from 30 to 40 fathoms deep.

Trefoil *(i)* is another copper-mine in this district, the returns from which are particularly well drawn up. The answers are:

5. The levels are generally 5 or 6 feet high; 6 feet high the main levels. The smallest height 4½ feet, or 5. There are no horseways; horses are not worked underground in Cornwall.
6. It varies from 6 inches to 3 feet or 4.
7. The dip or underlie of the lode is about 2 feet in a fathom. Levels are driven in the lode, after which the ore is taken away from these levels, generally upwards, and ore is also taken away by the winzes sideways.
8. About 60 fathoms from the surface, and 40 from the adit.

The answers from Wheal Friendship (*k*), the largest copper-mine in Devonshire, will serve to show the identity of the method there employed with that practised in Cornwall. They are:

5. None less than 6, and generally 7 feet high, and 4 feet wide.
6. Veins and lodes of ore, varying in size from 2 inches to 7 feet wide.
7. This and some of the other queries have reference to coal-mines. From the answers to the two last queries, it must be evident that some of the "country" must be taken away with the lodes, etc. (It had been stated before that their inclination was 3 or 4 feet in the fathom.)
8. The bottom of the mine is about 180 fathoms perpendicular depth below the surface, and the workings of the mine are from about 30 fathoms below the surface to the bottom of the mine, but principally towards the bottom.

As specimens of lead-mines, the Cornubian (*l*) in the N.E. part of the Central district, and Wheal Betsey, in Devonshire, may be given. The answers for the former are:

5. Varying from 4 to 7 feet.
6. From 1 inch to 18.
7. We take away the top and bottom, but secure the vacancies by stemples, or props.
8. From surface to 55 fathoms below.

For Wheal Betsey *(m)* the answers are:

5. None less than 6, and generally 7 feet high, and 4 feet wide.
6. The veins vary greatly in size, from 2 inches to 6 and 7 feet wide.
7. The inclination of the lode is from 1 to 2 feet in the fathom; some part of the "country", or sides, is therefore taken away.
8. The bottom of the mine is about 120 fathoms below the surface, and the principal workings are from the bottom to within 60 or 70 fathoms of the surface.

The statement made in the answers from the United Mines of the relatively larger dimensions of the levels in the more recent than in the older workings is true of the mines generally, and especially of those which have been carried to a great depth.

28. The natural conditions of these shafts and levels, supposing no one to have been in them for some time, are darkness, and an air more condensed than that on the surface, and a temperature higher in proportion to the depth. There is no reason to believe that any gas, except carbonic acid, is generated from the strata or veins in these mines. Where they have been carried beneath beds of alluvium which are periodically submerged, some of the inflammable compounds of hydrogen are at times emitted. Instances of this kind are mentioned in the Evidence (p. 851, l. 28; p. 852, l. 7).

29. With regard to the natural *temperature* of these mines at different depths, and in different strata, I am enabled, by the kindness of Mr. Henwood, to give the following summary, which shall be stated in his own words:

I have personally inspected, (he says) every part of about 200 mines in Cornwall and Devon, and have made many hundreds of observations on the temperature of the streams of water which flow into them immediately as they issue from the unbroken rock. The following is a general summary of my results:

Temperature.

Depth, in Fathoms, of Place of Observation.	In Slate Degs (Fahr.)	In Granite. Degs. (Fahr.)
Surface to 50	57.0	51·6
50 " 100	61·3	55·8
100 "150	68.0	65·5
150 " 200	78.0	
200 and upwards	85.6	81·3*

These conditions would exist even if the ventilation amid drainage were perfect; but this being very seldom the case, there will commonly be an accumulation of carbonic acid gas, and a lodgment of water.†

*The whole letter, from which the above extract is taken, is given in the Appendix (A).

†The two following returns to queries will serve to illustrate the variations of temperature in different mines, and under different circumstances. In the *first,* from Wheal Coates, a tin-mine, on the north coast, coming within the Central district, Mr. Carne, the manager, writes-

30. When work is carried on, there is, of course, a rapid exchange of oxygen for carbonic acid, by means of the respiration of the miners and the burning of the candles; and, when blasting takes place, the gases generated by the explosion of gunpowder are diffused, and a thick smoke fills the shaft or level. The following analyses* show the extent of impurity of the air in the places in which the men are often employed.

Sample 1. Wheal Vor, tin-mine in slate. One gallon sample from the 250 fathom level below the surface; 15 fathoms west of any shaft or winze, and taken a few minutes after firing a hole, with two men in a core. Specific gravity of air 0·997; nitrogen 81·519; oxygen 18·416; carb. acid 0·065; no trace of any other gas.

Sample 2. Wheal Vor, as before, 250 fathoms; 16 fathoms east of any shaft or winze; two men in a core; ten minutes after firing a hole. Specific gravity 0·993; nitrogen 83·00; oxygen 16·69; carbonic acid 0·075.

Sample 3. Wheal Vor, 240 fathoms; 24 fathoms east of any shaft or winze; two men in a core; taken half an hour after firing a hole. Specific gravity of air 0·997; nitrogen 80·98; oxygen 18·95; carbonic acid 0·066; sulphuretted hydrogen and sulphurous acid, strong trace.

Sample 4. Wheal Vor, as before; 230 fathom level; two men in a core; 22 fathoms from winze or shaft; half an hour alter firing a hole. Specific gravity 0·994; nitrogen 82·556; oxygen 17·282; carbonic acid 0·082; sulphuretted hydrogen 0·080; sulphurous acid, strong trace.

Sample 6. Wheal Vor, *Penhale,* slate; 36 fathom level; four men at work in a dead end; candle burned with difficulty. Specific gravity 0·994; nitrogen 85·01; oxygen 14·76; carbonic acid 0·23.

Sample 8. Great Work, granite; tin and copper; 160 fathoms from surface; two men in a core; 30 fathoms from winze or shaft; 15 minutes after firing a hole. Specific gravity 0·992; nitrogen 84·705; oxygen 15·15; carb. acid 0·145.

Sample 13. Cairn Brea, copper-mine, granite; 95 fathom level; machine blowing. air; two men in a core; spot wrought only 16 hours out of the 24; sample taken three-quarters of an hour after firing a hole. Specific gravity 0·992; nitrogen 85·36; oxygen 14·51; carbonic acid 0·13.

Sample 14. Tresavean, copper-mine, in granite; 156 fathom level, 208 from surface; two men in a core; directly after firing a hole; 65 fathoms from winze or shaft. Specific gravity 0·993; nitrogen 83·52; oxygen 16·35; carbonic acid 0·13; a slight trace of sulphuretted hydrogen.

The summary of the analysis of 18 samples from different localities is this; oxygen 17·067; carbonic acid 0·085; nitrogen 82·848.

The temperature of the mine, by observation, does not vary materially in summer or winter. The western part of the mine is a pale sand, with hard bars of a darker description intersecting. The 30, 53, 65, and 75 fathom levels are in this ground. The eastern part is a soft granite, intermixed with china-clay. The 40 and 50 fathom levels are in this part of the mine; and the temperature has been at all times found to be many degrees colder, varying very little from the water.

				Degs.		Degs.
In the Western part, at the	30	fathom level, the temperature is		61	the surface being	68
“	55	“	“	62		
“	65	“	“	59		
“	75	“	“	63	whilst, in the other strata,	
At the Eastern part	40	“	“	58		
“	50	“	“	55	the water being also	55

The *second* answer is from the principal copper-mine in the Eastern district, Fowey Consols. The manager, Captain Davis, R.M., states that the temperature of the air in or near the bottom of the mine, where, in a regular course of working, it cannot be so well ventilated as the upper levels, is as follows:

				Degs
180	fathom level below the adit, and about		40 fathoms from a winze	88
170	“	“	50	87
160	“	“	20 fathoms from a cross-cut	80
55	“	“	200 fathoms front shaft and 25 from draft of air	76
100	“	“	60 fathoms from a winze	75

But where there are more communications by sufficient shafts, winzes, or cross-cuts front lode to lode, at convenient distances from each other, the circulation is quite sufficient to produce good air. On the 12th of April, 1841, the thermometer was tried at different places, and stood as follows:

Degs.	
58	at the surface.
57	at the adit, in a strong current of air between two shafts.
71	at the 80-fathom level below the adit and 10 fathoms from a cross-cut
67	in the cross-cut.

The water in this mine is found to be in general from 3 to 4 degrees colder than the air in the *same level* and *locally.* The 'country' is chiefly composed of friable and laminated killas, mixed with quartz and other courses of hard stone.

* These analyses were conducted by Mr. M. P. Moyle of Helstone. A premium was awarded for them by the Polytechnic Society of Cornwall, and they are published in its 8th Report (1840).

It has been seen that in one instance the quantity of oxygen was reduced to 14·51, and that in another the quantity of carbonic acid was raised to 0·23. These results exhibit a lessening in the proportion of the vital ingredient of the air from its usual per centage 21, and an increase in a directly noxious ingredient, carbonic acid gas, from 0·05, its ordinary amount, calculated to produce effects sufficiently injurious to those who, for hours together, inhale such a fluid. But the proportion of deleterious gases occasionally present where the miner must labour (whether of sulphuretted hydrogen and sulphurous acid, which are very rapidly absorbed by the water lying in the levels, or of carbonic acid, which accumulates, like water, where there is no drainage) is much greater than that detected in the analyses here reported. It is then that the distinctly poisonous effects of these agents are produced, and loss of life, either at once or more remotely, has often been the consequence. Carbonaceous particles from the candles and from blasting, and mineral-dust from the working of the strata or veins, are also suspended in the air which the miner inspires, and give a peculiar character to his expectoration: copper has even been detected by analysis in notable quantity in such air.

31. In proportion as a mine increases in depth, the importance of ventilation increases, and it becomes at the same time more difficult to effect it thoroughly. As far down as the adit level there is usually a free perflation, and it is only in an "end", a cul-de-sac remote from the shaft, that the air can be materially impure. Farther down, as no horizontal communication with the surface can exist, the interchange of ascending and descending currents of air affords the only natural supply; and by making the levels of large size, and establishing free communication between them by the short levels, called winzes, aeration (considered sufficient) is effected even in the deepest mine in Cornwall, without the use of air-machines. In fact, those which have been hitherto commonly adopted are much more advantageously applied in the shallower mines or parts of mines. Some account of these more special contrivances is given in the following returns, as respects their employment in particular localities.

From St. Ives Consols, an important tin-mine in the Western district, the following statement is given:

Invariably we communicate from shaft to shaft, of which we have several from 50 to 80, and some 100 fathoms apart, by levels at every 10 or 20 fathoms, as the mine is worked downwards, which furnish an abundance of air, excepting for short periods before the communication takes place. In case of ventilation being required, we attach an air cylinder machine to the engine, and the air thus obtained is conveyed through pipes to the places required. Air is also frequently obtained by a fall of water, from one level to another, through pipes. There are various other means of obtaining air, but the two noticed in all cases are efficacious.

The agent at East Wheal Crofty, a copper-mine in the Central district, gives the following answer:

By shafts, trapdoors, and winzes, 15 fathoms apart; also air-pipes, waterfalls, &c., for ends not relieved by winzes. Waterfall, where applicable, is best.

From Dolcoath, a neighbouring copper and tin mine, this return has been made:

By shafts, windses, and air-pipes. Levels are seldom driven more than 20 fathoms beyond a shaft or winds. All our pipes are made of whole boards.

Captain Davis gives the following account of the methods used at Fowey Consols:

To create circulation of air for the purpose of ventilation, we use machines commonly called duck-machines. Larger ones are worked by the engines, and the small ones with the common leverage power by boys. In some places the air is forced by a fall of water: all these answer the purpose very well.

32. These statements will sufficiently exemplify the usual arrangements for effecting ventilation. It is chiefly by the sinking of numerous shafts at short intervals beneath the lowest levels, and establishing free communications between them as speedily as possible, that the deeper mines have been rendered at all fit for the men to occupy. But no method hitherto introduced is adequate to maintaining the air in the places in which the miners work in anything like a state of purity; and even in those parts in which ventilation keeps up a fair supply of fresh air, there is in almost all mines a constant smoke after the first blasting in the morning; so that the shafts and galleries are not unlike chimneys, often sending out a visible column at the surface. The smoke is sometimes so thick (Evidence, p. 822, l. 3) that the miner can with difficulty see his hand.

33. From the nature of the ease the most advanced point of the excavation must be a cul-de-sac, and it will often be impossible to establish any communication with parts above or below. Hence it is that almost every miner in the deeper mines is at times exposed to what he himself designates "poor air", by which he means air so impure as to affect him in a noxious way distinctly perceived by him at the time. Of the less marked degrees of impurity he makes no account. Of the deficiency of oxygen, the excess of carbonic acid, the presence of sulphurous acid or sulphuretted hydrogen, he is not aware, and of smoke, however dense, he seldom takes any notice.

34. Every mine is more or less *wet.* It constitutes a receptacle for the waters permeating the strata through which it passes. The *adit* is the drain through which a great part of the water lying above its level, and a great part of that raised by machinery, is discharged. One or more of the deepest shafts are appropriated as wells, and from these the water is raised by steam-power; a preliminary process involving the greatest difficulty and outlay connected with the working of many mines.* The quantity of water in one mine differs exceedingly from that in another, partly in relation to the nature of the strata: thus mines in slate are generally wetter than those in granite. But a greater difference is artificially produced he the multiplication of mines in a district; the whole of its waters being thus distributed among many wells instead of a few, and the pumping being thus rendered less onerous to each.

35. Where a mine is situated near the coast, its drain or *adit* generally opens on the surface at a point very little above the level of the sea. When more inland the deepest valley in the neighbourhood is the place of its discharge. In other cases a large common adit has been driven from some valley, but little raised; above high water, into the centre of an upland mining district, and the separate adits of the several mines open into this general drain. In many mines a large quantity of water is constantly poured through the interstices and fissures of the strata, and it is often of a temperature so much lower than that of the air in which the miners are at work, that they are subject to very serious chills from this cause. Under particular circumstances they are obliged to work more than half submerged. Illustrations of such circumstances may be found in the evidence (p.848,1.3; p. 854, 1. 65; p.835, 1. 54).

36. It has been already stated that *ladders* are the universal means of ascent and descent in these mines. There are a few instances of veins emerging at the surface, and being inclined at such an angle that they have been followed and excavated without much other footway than steps cut in the rock; †but these are merely exceptions. The ladders vary in different mines, and sometimes in different parts of the same mine, from two and a half to ten fathoms in length, and from a direction nearly vertical to an inclination of two feet six inches, or even more, in the fathom. The distance between the levels being generally ten fathoms, or sixty feet, a single ladder very often reached in former times from one to the other. Some of these ladders are still found (Evidence, p. 848, 1. 35), but they are rare (Evidence, p. 821, 1. 20). The most usual length at present is from four to five fathoms.

37. In the perpendicular shafts the inclination is commonly such that the ladder may nearly traverse the breadth of the shaft. From eighteen to twenty-one inches in the fathom is the inclination which experience has determined to be the most calculated to facilitate the progress of the miner; being that which enables him to stand upright in the ladder, with the leg clear from the stave above, so that the effort is divided between the upper and lower extremities (Evidence, p.824, 1. 49; and Mr. Henwood's letter, Appendix A). The inclination of the ladders is however, in many cases determined by that of the veins, and when the underlie is great, the footway will be at times much further removed from the perpendicular (Evidence. p. 821, 1. 7).

38. The distance of the staves in these ladders is very generally one foot from the upper surface of one to the same point in the next. In some old ladders they were as much as fourteen inches apart (Evidence, p. 824, 1. 50). But the results of

* Such a well or pit at the bottom of the engine-shaft, the deepest part of the mine, is called the *sump.* When the water has been so far removed as to admit of the workings being carried on in the lowest levels, it is said to be *in fork*.

† There is one instance, at Carclaze, near St. Austle, of a tin-mine being worked, like a quarry, quite open to the surface. It is situated on some of the highest ground in the neighbourhood, and, if not very valuable as a mine, is very picturesque.

the trials made of shorter intervals will tend to produce a gradual change in that direction. It will be seen in the evidence, that at Tresavean (p. 824, 1. 46), at Trethellan (p. 821, 1. 11), and (Mr. Henwood's letter, Appendix A) at Wheal Mary, the distance of ten inches has been adopted with very important effect in facilitating the climbing: so that one-fourth of the labour is estimated to be saved; and even men who had been obliged to relinquish work in the lower levels have been able to resume it.

39. The staves are most usually of wood; iron is in many instances preferred; in others it is said to become both slippery and jagged from the corrosive action of water impregnated with salts of other metals, chiefly copper.

40. Each ladder usually terminates on a platform (sollar), an opening (man-hole) in which leads to the ladder below. This is generally so situated that the ladders are parallel to each other. In a few instances there is, in addition to this platform, a penthouse placed between the back of the ladder and the walls of the shaft, so that it covers the passage to the ladder below, and prevents the risk of the descending miner falling more than a few feet, supposing the ladder to be from four to five fathoms in length,— and the much greater risk of the falling of anything from above upon those who are below (Evidence, p. 851,1. 63). A contrivance of similar intention is adopted in some mines—that of placing trap-doors over the manholes, and making it a rule for the last man of a party to close them (Return for Boscean Mine). It is clear that more is here trusted to the carefulness of the miner than in the former method; the closing of these trap-doors must also, it is conceived, cause a serious obstruction to ventilation.

41. The principal tools used by the miners are *picks* for working the rock, and *borers* and *mallets* for making the holes for blasting. These are often sent up and down in the bucket (kibble) in which the ore or rubbish is drawn to the surface; but the miner very commonly carries with him from 10 to 20 pounds weight of tools. There is a constant necessity for hardening and sharpening them, which is done at the smith's shop. In one mine only (Wheal Vor) a forge has been established under ground, in imitation of the practice in some parts in Ireland,* for the performance of work of this description. It is said to be very advantageous in an economical view, the weight of coal sent down being only one-fortieth of that of the tools formerly sent up, and time being likewise saved; but its most beneficial effect is the saving of the miner's labour, and the avoidance of the risk of accidents. (Evidence, p. 842, 1. 28).

42. A brief consideration may now be given to the adults by whom the under-ground operations in these mines are carried on. The miner of the West of England is a man of moderate stature, spare and muscular, with a chest and upper limbs rather more developed than the lower, and having the shoulders slightly inclined forwards. The complexion is sallow, and rather soddened. A miner of very large frame is seldom seen; a very fat miner could be hardly met with. The following table will exhibit the weights of miners in different districts:

Table 1. Weights of Miners working under ground in the several Mining Districts of the West of England.

District.	Mine.	Principal Produce.	Depth in Fathoms.	Number of Men employed.	Number weighed.	Age of those weighed.	Average weight.	Greatest weight.	Least weight.	Remarks.
Western Cornwall	Levant .	Copper	260	300	30	20 to 30, average 25	lbs. 144½	lbs. 165	lbs. 124	These men were taken as they followed each other up from under ground.
Ditto .	Balleswidden	Tin .	85	535	30	20 to 30	158½	..	..	The circumstances under which these men were weighed are not stated, neither are the greatest and least weights.
Central Cornwall	Wheal Vor	Tin .	250	..	8	..	169¾	..	..	These men were weighed when they were about to go under ground, at 6 P.M. They were taken indiscriminately.
Ditto .	N. Roskear	Copper	194	320	45	20 to 30, average 24½	156	166¾	146	These men were taken indiscriminately from the whole body assembled on the pay-day. Three picked men, whose average age was 28½, averaged 188 lbs.; and three, whose average age was 49, averaged 163 lbs. They were weighed by threes; the greatest and least weights therefore represent the averages of three each.

*In the Allihies Mines, County Cork, two underground forges have been worked for several years advantageously.

TABLE 1.—Weights of Miners working under ground, &c., *continued*.

District.	Mine.	Principal Produce.	Depth in Fathoms.	Number of Men employed.	Number weighed.	Age of those weighed.	Average weight.	Greatest weight.	Least weight.	Remarks.
Central Cornwall	Consols .	Copper	300	954	20	20 to 30, aver. age 24½	lbs. 157⅛	lbs. 161¼	lbs. 156¼	These men were weighed before they went down, four at a time. Twelve others, who had just come up from under ground, averaged 146 lbs. each: their average age was 24. Eight men, whose mean age was 40, averaged 145 lbs.
Eastern Cornwall	Fowey	Ditto .	230	1030	52	..	163½	192	..	The men in this party were weighed in the weighing-machine. Only three were weighed separately: the "greatest weight" given is that of one of these.
	Consols				27	..	156½	183	136	These men were weighed separately on the patent scales. The ages are not stated.
Devon .	Wh. Friendship.	Ditto .	180	340	30	20 to 30, average 23⅝	153½	178	130	The circumstances under which these men were weighed are not stated.
Total	..	..	..	3479	242	..	157⅜	192	124	The Returns for Levant, Fowey Consols, and Wheal Friendship, are signed by the Managers, Mr. Rowe, Captain Davis, R.M., and Mr. Matthews respectively. The weighing at Wheal Vor, N. Roskear, and Consols, was conducted by myself.

43. Much attention has been given within the last few years, and chiefly under the auspices of the Royal Polytechnic Society of Cornwall, to the determination of the average duration of the miner's life, and of the causes by which it is shortened. For the elucidation of the former point, researches were instituted (by Mr. Robert Blee), and some of the most important results are embodied in the following tables:—

TABLE 2.—Showing the Number and Proportion of Male Deaths, at certain intervals of Age, in several Mining and Non-Mining Parishes in Cornwall.

	Parish.	Description of Population.	Male Census 1831.	Of the Total Number of Males dying in Ten Years, there died per cent. between the Ages of									Total Male Deaths in Ten Years.	Decennial per centage of Male Deaths.	Remarks.
				0—10	10—20	20—30	30—40	40—50	50—60	60—70	70—80	80—100			
Non-Mining.	Probus . . .	Rural .	673	29·7	3·	9·9	4·5	6·5	9·1	6·8	18·3	11·4	131	19·4	An almost exclusively agricultural parish; well cultivated; population generally located on elevated sites.
	Mabe . . .	Ditto .	248	43·7	12·5	3·1	3·1	—	9·3	3·1	15·6	9·3	32	12·2	Exclusively rural; cold, and inhospitable; soil not rich. No miners.
	St. Clement's .	Rural and Urban.	1311	42·7	4·7	7·	7·5	5·4	6·4	11·3	6·4	8·7	185	14·1	The majority of its population reside in the town of Truro.
	Mylor . . .	Ditto .	1116	38·3	5·4	6·9	4·4	4·9	6·4	15·8	10·9	6·4	201	18	The majority of its population reside in the town of Penryn.
	St. Mary's, Truro	Urban .	1280	39·4	5·2	7·6	5·5	4·1	5·2	9·	13·8	7·6	287	22·4	Exclusively resident in the town of Truro; but this is cleanly in this part.
	Penzance town .	Ditto .	2845	45·7	4·2	5·8	6·6	5·5	7·6	7·8	10·7	5·7	560	19·6	Exclusively urban; well ventilated.
	Falmouth town and parish.	Ditto .	2849	44·	4·3	7·1	7·7	7·5	7·6	8·1	8·8	4·2	821	28·8	Town population crowded. In many parts dirty courts, &c.; water scarce.
Mining.	Illogan . . .	Rural .	2906	35·8	8·6	12·4	8·8	7·9	9·6	8·1	5·6	2·8	602	20·7	Similar to Probus and Mabe, except in having the majority of its population engaged in mining.
	Gwennap . .	Ditto .	4087	41·5	7·6	8·	7·5	10·	11·	6·2	5·1	2·6	804	19·6	Has one large village, otherwise like Illogan. Miners in still larger proportion.
	Redruth . .	Rural and Urban.	3876	49·1	4·9	5·7	7·2	10·3	8·5	6·3	4·2	2·8	887	22·8	A large and dirty town, in which there reside a great number of miners.

TABLE 3.—The same particulars respecting Females.

	Parish.	Female Census 1831.	Of the Total Number of Females dying in Ten Years, there died per cent. between the Ages of									Total Female Deaths in Ten Years.	Decennial per cent. of Female Deaths.
			0—10	10—20	20—30	30—40	40—50	50—60	60—70	70—80	80—100		
Non-Mining.	Mabe . . .	264	33·3	11·1	5·5	8·3	8·3	2·7	5·5	13·8	11·1	36	13·6
	Mylor . . .	1531	30·4	6·8	6·8	8·1	9·	5·5	8·5	13·3	11·1	233	15·2
	St. Mary's . .	1645	35·6	7·	6·	5·7	5·7	5·	11·7	11·4	11·4	314	19·
	Penzance . .	3720	35·5	4·3	7·7	6·5	5·5	7·2	10·3	11·6	10·4	577	15·5
Mining.	Illogan . . .	3166	36·7	8·4	9·3	6·2	5·	7·2	6·6	10·3	9·7	511	16·7
	Gwennap . .	4452	44·6	6·6	7·7	5·3	4·	6·1	7·2	10·	9·8	650	14·6
	Redruth . .	4315	45·	4·6	6·9	4·8	4·5	4·8	8·4	10·8	9·7	777	18·

44. These tables were drawn up about three years ago. Since that time the new Registration of Deaths has furnished materials for a comparison between the miners and other labourers living in the same parishes. The results obtained by Mr. Blee from this comparison, as instituted by him, are given in this table:—

TABLE 4.—Showing the Average Ages of Persons Dying above 30, and Registered, in Three Years in the Parish of Camborne, in Two Years in Gwennap, and in One Year in Illogan.

Parish.	Males.		Females.	Proportion per Cent. of Miners' Deaths by Mine Accidents.	
	Miners.	Not Miners.			
Gwennap . . .	46	60	54	16	Mean per centage of the three parishes, 17.
Illogan* . . .	49	68	54	32	
Camborne . . .	54	60	53	5	

Mr. Lanyon has also brought together the results, for the first year of the new registration, for the mining parishes of St. Just, St. Austle, St. Ives, Gwennap, Stithians, Redruth, Illogan, Camborne, Gwinear, Gwithian, Breage, and Phillack. They are here exhibited:—

TABLE 5.

Class.	Number of Deaths.	Average Age.
Miners	. . 213 . .	50 years 7 months.
Labourers, &c. . .	. . 196 . .	56 years 7 months.

In the following table are given the results of my own examination of the registers of St. Agnes and Perranzabuloe, Kenwyn and Kea parishes, for the period from July 1st, 1837, to February, 1840, for the former two parishes, and to December, 1840, for the two latter:—

TABLE 6.—Showing the Particulars stated with respect to Miners and other Males above the Age of 15, distinctively.

Parishes.	Population, Census 1831.	Class.	Total Deaths.	Causes of Death.			Average Age.				Remarks.
				Consumption	Accidents.	Other Causes.	Consumption	Accidents.	Other Causes.	All Causes.	
St. Agnes and Perranzabuloe	9,435	Miners. .	87	52	6	29	41·5	21·16	57·	49·8	1294 labourers 20 years old are returned (by the census 1831) as employed in mines in these parishes. *One* of the accidental deaths of *miners* in the former parishes, and *one* in these happened to an *engineer*.
		Not Miners	44	10	1	33	31·9	30·0	60·9	53·6	
Kenwyn and Kea	12,388	Miners. .	59	25	7	27	41·4	41·8	50·7	45·6	
		Not Miners	90	23	3	64	31·0	41·0	51·4	45·9	

* Mr. Blee has since examined the Illogan burial-register for two additional years, and the results have been:—Average age above 30—*miners*, 51; not miners, 64; per centage of *miners* dying violent deaths, 18·4.

45. Among the *causes of death* assigned in the registers, those which affect miners to a greater extent than other labourers are consumption and accidents. With respect to the former. it will he seen from the above table (6) that of 146 miners, 77 (or more than one-half) died of consumption, whilst of the males of other classes, only 33 out of 134 (or less than one-quarter) died of this disease.

The following table conveys the results of an examination of the burial-register of St. Just by Mr. Seymour Tremenheere :—

Table 7.

Parish.	Miners' Deaths entered.	Cause of Death entered.				Average Age of those who died by Accidents.
		Consumption.	Accidents.	Various Disorders.	Old Age.	
St. Just, in Penwith	67	29	16	13	9	21·25

The proportion of the deaths by consumption is here more than two-fifths; that among other classes of labourers is not stated.

46. It may be seen from the above tables that the ratio of the deaths by accident to the total deaths of miners has been in Gwennap, Illogan, and Camborne 17 (Table 4), in St. Agnes and Perranzabuloe, Kenwyn and Kea (Table 6), 8·9, and in St. Just (Table 7) 23·8.

The returns made to the queries under the present inquiry give a total of 75 deaths by accident during the last two years, and of these about 70 happened to adults. Those returns embrace altogether an adult male mining population of 12,409. Hence it would appear that the annual proportion of deaths of this description is 1 in 354 of the men employed.*

47. The disease designated *consumption* in the registers embraces two principal varieties. One of these is a form of tubercular phthisis, not distinguishable from that disease as occurring in other classes; the other has apparently nothing to do with the tubercular diathesis, and is distinctively the miners' consumption. In many cases it has been preceded by pneumonia and bronchitis, perhaps often repeated; but in many others, and these are the most characteristic, a degree of shortness of breath is the first symptom complained of, and it is long, whilst itself gradually increasing, unaccompanied by any other. The digestive powers are unimpaired; the miner says "his heart is good;" and when seated feels as if his health were perfect. After a time, however, he begins to lose flesh, and his general strength slowly fails. Pain is not felt until late, and it is then for the most part fugitive. At length cough and expectoration, moderate in extent, come on, and hectic fever is at last established, with the usual concomitants; though the progress of each stage of decline is still slow, and marked by no urgency of symptoms. The duration of this form of disease varies from two to ten years or more; and it is this which chiefly cuts off the miner between the ages of 35 and 50. The chronic character of this *consumption,* and its independence of a strumous origin, are also illustrated by a comparison of the average ages of miners and of other labourers registered as having died of *consumption.* It has been shown (Table 6), that in four parishes, whilst the average age of death by consumption was for miners 41·5 (nearly), it was for other classes less than 31·5.

48. The consumption occurring under 25, which is analogous to the disease so called among other classes, manifests itself, by cough and expectoration (often of dark-coloured sputa), at an early period, and in my own experience has been often associated with hemoptysis. (Evidence, p. 835, 1. 45.) But though deriving some of its characters from the occupation of the sufferer, it is commonly attended by the usual symptoms of tubercular phthisis, and its connexion with a strumous diathesis is often evidenced by the appearance of similar disease among the female members of the family who may be even quite unconnected with the mines.†

49. The description already given of the nature of the places under ground in which the miner works, and of his labour, will furnish a sufficient list of causes of disease.

* The average age of the 29 miners stated in Tables 6 and 7 to have died from accidents is 26·2. These are the only instances in which, as far as we are aware, the age has been extracted from the register. To conclude that the period at which life has been terminated in this way is so early on the general average would be hasty; but the result in these cases is worthy to be borne in mind, in its relation to this inquiry.

† Thus Mr. Lanyon says--"A man presented himself labouring under phthisis: he informed me that he had lost 3 sisters by the same complaint, 1 at 21, another at 36, and a third at 42 years of age ; also 2 brothers. like himself miners, 1 at 54, the other at 59, whilst he himself is 53; so that the brothers exceeded the ages of the sisters by many years." (See also Evidence, p. 840, 1. 24.)

What is here to be observed is the difference of their effects on different individuals. In the younger subjects, acute inflammation or hemoptysis may be induced by some of these causes; whilst in others, the inhalation of carbonaceous, and mineral particles especially, may excite either free secretion of mucus merely, in which the foreign matters are expelled, or it may give rise to a chronic inflammatory condition of the membranes, or, in those who are predisposed, it may occasion the deposition of tubercles, which will be followed by consumption more or less rapid in its course. But in men whose constitutions have been robust up to the age of 35 or 40, the membrane, long habituated to the contact of these foreign substances, retains comparatively little irritability, and the secretion from its surface, in which those substances are involved and rejected, is much less readily produced; the consequence is that they are retained to some extent in the minuter bronchial ramifications, and assist in causing, when they have become more compactly aggregated, the train of symptoms described above, which are similar to, only less acute than those which occur in persons exposed to the inhalation of mechanically irritant particles in other occupations, particularly in the grinding of stone and steel. The characters of the sputa, even at a late period of disease, not infrequently indicate the long-continued retention of such particles; and examinations after death (though very few such have been made) have exhibited deposits resembling melanosis, not unconnected, I believe, with such retention. The partial occlusion of the more minute bronchial tubes, and of the air-cells, both directly by the aggregation of these particles by means of viscid mucus, and indirectly by the gradual thickening of the membrane induced by their contact, will contribute, by increasing the effort of respiration, to the dilatation of the larger tubes, and to the pulmonary emphysema found in other cases; though these effects may be more directly produced by the lodgment in one of the larger pipes of a quantity of this compacted substance.

50. Diseases of the heart and great vessels might, *a priori*, be expected to be of frequent occurrence under the above circumstances. My own experience leads me to believe that they are rare, if we except such degrees of hypertrophy and dilatation as are usually found in those who have followed laborious occupations during a long series of years. Valvular disease is very uncommon. The unplethoric condition of the miner, and the very free perspiration maintained during his labour, will serve to account for his not being the subject of disease of the great organs of circulation to the extent which might have been anticipated.

51. It will have been seen from the foregoing Table (No. 6.) that the deaths caused by other diseases are less in proportion among the miners than among other classes in their neigbourhood. The relative numbers living at the same ages not being known for the several employments respectively, it is probable that some corrections may be necessary for the establishment of a just comparative estimate; but it is believed that these would not materially affect the inferences here deduced.

52. Data are wanting for the ascertaining with accuracy the amount of sickness among the adult miners, short of that which terminates fatally. Pay from the sick-club is usually limited to cases of external injury, and no record of the time lost by sickness has been kept. On the whole there is reason to believe that dyspeptic affections are frequent among miners until about the age of 25, that they generally enjoy something approaching to immunity from disease from that period until 40, and that afterwards the pulmonary affections most fatal to the class begin to show themselves, and proceed with more or less speed in after years. This is nearly the opinion given by Mr. Lanyon with respect to the large body of miners in the midst of whom he has practised, and there is reason to believe that it is very generally applicable (Evidence, p. 835, l. 20).

53. Notice has been already taken of the amount of *fatal accidents*. A great number of others inflicting injury, not incompatible with the preservation of life, occur in almost every mine. From the United Mines, for a period of two years, in which only one accident attended with loss of life occurred, a return has been made of 77 names of those who received pay from the club in consequence of injuries which detained them from work.* The nature of the injuries has not been recorded; but they are stated by the agent making the return (Mr. Francis) to have been in nearly all cases slight. The only mine in which I have discovered a record of the injury, as well as of the time during which pay was received, is East Wheal Crofty. The agent (Mr. Tredinnick) has favoured me with a copy of it, and the results are given in the following table:

* The number of men employed is 626.

Table 8.—Showing the Number of Accidents which occurred in East Wheal Crofty Mine during the several months of the year 1840, with the loss of time occasioned by them to the men.

Months.	Number of Accidents.	Average detention from work (in days).	Longest detention (in days).	Shortest detention (in days).	Remarks.
January . . .	15	10·4	28	2	Three cases of *broken* legs are entered in January, besides the accidents in the table. One of these received pay for six months; one for 14 months; and the third was still doing so at the end of 18 months, when the record closes. The accidents referred to in the table are stated to have been all trifling; but a few of the cases were attended with detention from work beyond the month. One fatal accident occurred in this mine. The accidents for the first six months of 1841 are similar in number and character. The number of men employed is 586.
February . . .	14	8·2	18	2	
March	7	7·4	17	2	
April	5	2·8	5	2	
May	3	6·3	10	4	
June	6	12·0	20	2	
July	8	10·6	21	4	
August . . .	8	7·7	12	3	
September . .	12	11·0	25	2	
October . . .	4	12·7	28	3	
November . . .	6	10·6	21	3	
December . . .	3	8·0	10	6	
Total . .	91	8·97			

There is no reason to doubt that this table presents a fair average view of the number, and severity of the casualties occurring in the greater part of these mines, though perhaps in respect of the latter point rather too favourable.

54. But besides that many of these injuries, though not immediately fatal, ultimately occasion the death of the sufferers,—a great number of individuals in the mining districts are permanently disabled by such contingencies for mining labour, and many for any mode of gaining a livelihood. Loss of sight has been one of the most frequent injuries of this kind.

55. The following table exhibits the causes of the 75* fatal accidents stated on the returns to the queries:—

Table 9.—Mine Accidents.

Mines.	Depth in fathoms.	Number employed under ground.	Surface.			Under ground.				Both.
			Explosion of a boiler.	Entangled in machinery.	Other causes.	Blasting.	Falling.	Ground falling.	No cause mentioned.	Total killed.
W. Owles	150	188	..	..	..	1	..	..	..	1
Levant	260	460	..	..	..	..	2	2	..	4
Ballaswidden . . .	85	535	..	1	..	..	..	1	..	2
Botallack	150	147	..	..	..	..	..	..	1	1
Bosweddan	75	90	..	..	..	..	1	..	..	1
Providence	120	116	..	..	..	..	1	1	..	2
Ding Dong	100	269	..	..	..	..	..	1	..	1
Reeth Consols . . .	90	114	..	..	..	..	1	1	..	2
Godolphin	110	..	..	..	..	..	..	1	..	1
W. Julia	135	..	..	..	..	..	2	..	..	2
Carzize	120	..	..	..	..	2	..	..	..	2
W. Prosper. . . .	78	184	..	..	..	..	..	..	1	1
W. Friendship . . .	100	214	..	..	..	..	..	..	4	4
W. Virgin	125	196	..	..	..	..	1	2	..	3
East W. Crofty . .	130	619	..	..	..	..	1	..	..	1
Dolcoath	190	451	..	..	..	..	..	1	..	1
Great W. Prosper . .	20	28	..	..	..	..	..	2	..	2
Restormel	50	94	..	..	1	..	..	2	..	3
Tretoil	60	108	..	..	..	..	1	1	..	2
Carnsmorry . . .	30	122	..	..	..	2	..	..	..	2
Charlestown . . .	85	430	..	..	..	..	..	3	..	3
Fowey Consols . . .	230	1067	..	1	..	..	2	3	..	6
W. Betsey (Devon) .	120	119	..	..	..	..	1	1	..	2
Tamar	145	61	..	..	..	..	..	1	..	1
West W. Jewell . .	115	107	..	..	..	1	1	1	..	3
United Mines . . .	220	739	..	..	..	..	1	..	..	1
Consols	300	1003	5	..	..	..	3	..	..	8
Tresavean	290	521	..	1	..	2	4	..	..	7
W. Jewell	150	207	..	..	..	..	1	..	..	1
Grambler, &c. . . .	43	40	..	..	..	..	1	..	..	1
R. Polberrou Consols .	130	152	..	..	1	..	..	..	..	1
W. Coates	75	133	..	..	..	..	..	2	..	2
Cornubian	55	100	..	..	..	..	1	..	..	1
Total . . .	..	..	5	3	2	8	25	26	6	75

*It appears from the *Second Report of the Registrar General* that the proportion of male deaths in Cornwall, in the year from July 1st. 1838, to June 30th, 1839, between the ages of fifteen and fifty-five. was to the males living between those ages (as deduced from the Population Returns, 1821) about one in eighty-six. If we consider the proportion to have been, among the miners employed under ground, one in eighty, we shall obtain a total mortality among those of this class to whom the returns of the number of

56. The causes of the minor accidents are often the same in kind with those now stated; others again, such as blows from the tools, are not calculated to produce very dangerous injuries.

57. A marked diminution of the accidents from "blasting'' has followed the introduction of safety-fuse* for firing the powder. The destruction of the eyes, noticed above, originated chiefly in accidents from this cause; and the prevention of the condition of helplessness thus induced is a benefit only less important than the saving of life.†

58. Every miner now takes some food with him when he goes under-ground an innovation on the custom 20 or 30 years, which has been justly considered most beneficial. The pasties and hoggans, the most usual articles of this kind, will be described in a future page of this Report. Extreme exhaustion during their labour is to a great extent obviated by this sustenance: it is often, however, still experienced after the fatigue of climbing at the conclusion of the hours of work. The condition of the body, if it be not then recruited, is the least adapted to throw off the noxious influences which it has been imbibing during the period of labour, and to resist the effects of the exposure to which it is about to be subjected. A short rest, and a small quantity of warm and nutritious fluid, taken at this time, may probably remedy the past and obviate the future evil, and will certainly afford most essential comfort to the miner. This benevolent provision has been only in one instance effected; but in that it has been eminently serviceable, and appears to have been preservative to an extent which could not have been anticipated. An account of the arrangements at Dolcoath for furnishing soup to the miners is given in the evidence (p. 837, 1. 60: p. 838, 1. 46). The cost of this bounty is not large, even though two houses and establishments for delivering it are there requisite.‡

59. Before the miner goes underground, he changes his ordinary dress for one of woollen, consisting generally of trousers, shirt, and jacket. He does not wear stockings, but puts on a pair of thick shoes, and he covers his head with a strong

fatal accidents apply (about 15,000) of 187·5, and of these, 32·5 (one-half the two-years' underground accidents in the above Table) will have been caused by these casualties, being 17·3, &c., per cent. Making due allowance for that part of the mining population respecting whom no returns have been made on this point, the total number of accidents almost immediately fatal, occurring in the mines of Cornwall and Devon during the two years, can hardly have been less than one hundred. A thousand, then, at least, have probably been cut off in this way in the last twenty years, and that generally in the prime of life.

* Safety-fuse is a species of cord, into the texture of which gunpowder is introduced, and which is afterwards covered with a coating of a bituminous nature. The process is secured by patent.

† A further security, in connexion with this operation, has been provided in a "tamping wedge", invented by Mr. R W. Fox; but it has not yet come into general use. *Polytechnic Report,* 1835.

‡ The first suggestion of this highly beneficial provision emanated from Dr. Carlyon (see Mr. Henwood's letter (Appendix A), and its execution is due to the same noble lady whose beneficence, emulous of her father's (the late Lord de Dunstanville), has ameliorated the condition of the miner, throughout a very extensive mining district, in almost every department. Mr. Petherick, the manager making the returns for Dolcoath, has assisted the inquiry by an account of the expense incurred by this provision, and of the numbers who have partaken the benefit. In the letter accompanying this account he says "As the time since the introduction of the delivery of soup in this mine is short (three years), *we* must not speak positively as to its effect as a preventive of consumption, but all of us have remarked that our men are not laid up with colds in the manner they were used to be, neither have we had but two cases within the last three years of miners' consumption." The number of men at Dolcoath is 404, and of boys working under ground 47. The account is as follows:

DOLCOATH MINE SOUP ACCOUNT.

1839.	January	Half-pints delivered to the men and boys		2598
	February	Ditto	Ditto	2837
	March	Ditto	Ditto	2751
				------- 8186
1840	January	Ditto	Ditto	2640
	February	Ditto	Ditto	2245
	March	Ditto	Ditto	2236
				------- 7121
1841	January	Ditto	Ditto	3256
	February	Ditto	Ditto	3579
	March	Ditto	Ditto	4092
				------- 10927

The average expenditure per month is £5 10s, viz Paid for the soup £1 15 0

Ditto for the delivery of it £3 15 0

1841		Abstract of One Week's Delivery		Men	Boys
April	I.	Delivered by Elizabeth Davey, in the	day, to	94	2
	Ditto	James Trezona	night	75	3
	2. Ditto	Elizabeth Davey	day	88	6
	Ditto	James Trezona	night	77	3
	3. Ditto	Elizabeth Davey	day	87	5
	5. Ditto	Ditto.	Ditto	82	5
	Ditto	James Trezona	night	77	5
	6. Ditto	Elizabeth Davey	day	86	6
	Ditto	James Trezona	night	77	2
	7. Ditto	Elizabeth Davey	day	84	5
	Ditto	James Trezona	night	87	

felted cap, hemispherical in the crown, and broad-brimmed, about two pounds in weight. On this he usually sticks his candle, by means of a lump of clay, attaching another to a button.

60. These habiliments are, unless the miner lives very near at hand, kept at the mines, in the changing-houses, where the ordinary dress is left till he comes up from his work. In a few mines, under the benevolent auspices lately referred to, the access to them, from the shafts by which the miner ascends, is by shallow levels terminating, by means of a short footway, in the interior of these buildings, so that the miner, when he comes to the surface, issues at once into a warm air without any exposure. In the changing-houses themselves, the degree in which accommodation is furnished for drying the clothes, and enabling the miner to change his dress without running the risk of chill, is very various. Some of the most perfect are described in the evidence (p. 838, 1. 54; p. 839, 1. 39).

61. Closely associated with these arrangements is the provision of warm water for cleansing the surface before the dress is changed. The quantity of water heated in condensing the steam - the great moving power in these mines - causes a ready access to this article, so essentially beneficial when the frame is exhausted, and the skin coated with mineral dirt; but in the greater number of the mines it is allowed to escape without being collected in any reservoir where the men might effectually avail themselves of it. The excellent contrivance for this purpose at North Roskear is described in the evidence (p. 839, 1. 44).

62. The great body of the miners under-ground are employed in excavating the rock, whether for the sinking of shafts, the driving of levels, or the removing the veins of ore. These operations require, in most of these mines, the almost constant application of the explosive force of gunpowder. The greatest part of the work consequently consists in "beating the borer", that is, driving an iron cylinder terminating in a wedge-shaped point, by blows with a heavy hammer (mallet), whilst it is turned by another hand. The necessity, or advantage, of making the hole in a particular direction, often constrains the miner to assume every variety of posture in carrying on this work; at times he is even compelled to lie on his side for this purpose.

63. When the rock has been bored to a sufficient depth, the charge is introduced, and rammed down with a "tamping-iron", a particular clay being used for wadding, and a certain length of safety-fuse keeping up the communication with the powder; fire is applied to this, and the miners retire till the explosion has taken place. It is not often that the safety-fuse misses fire, but accidents now and then arise from its burning more slowly than usual, which may occur from tight ramming down; the impatience of the miner leading him to a too early examination into the cause of the delay, and the explosion taking place before he withdraws.

64. After the blasting, the "pick" comes into requisition, for the removal of the partially separated and angular pieces of rock. In soft ground the use of gunpowder is only occasionally required. A more minute account of some of the operations which are performed equally by boys and men, and of the usual hours of work, will be found in subsequent sections of this Report.

65. The work above described is done almost universally by the piece. The miner contracts to excavate the rock in a certain situation, at so much per solid fathom; this is denominated "tut-work"; or he undertakes to excavate the vein, and to fit the ore for the market, at the price of so much in the pound of the sum for which the ore is sold; this is called " tribute".

66. It will be seen that both these contracts are, to a certain extent, speculative; but while the former involves only the uncertainty of the nature of the ground, which in these strata is not ordinarily great, the latter is dependent on the character of the vein as well; on its size, and richness, which are exceedingly variable in the majority of mines. The consequence is, that while the tutworkman receives pay approaching in the regularity of amount to that of the daily labourer; the tributer is on one occasion absolutely a loser, and on another receives a sum unusually large for a person in his rank of life.*

The method by which the contracts are let, tends however to equalize, in a great measure, the average monthly earnings during periods of considerable length. At certain stated times, generally at an interval of two months, the work to be

*The tributer is in fact a co-adventurer with the owners, but one who risks nothing but his time and labour.

done in different levels is put up to be contracted for. Each place of work (pitch) requires a certain number of men and boys, determined by the agent; the partnership between the individuals being entirely voluntary. The greater part of the men who are employed in a particular mine are generally present on these occasions; or at any rate one of each party is there to compete for the contract. The agent, who acts as auctioneer, commonly standing in the window of the counting-house of the mine, names a particular place of work, as "the 140 west of Doctor's Shaft." Some one immediately names a price, and, in a great majority of cases, this is one of the party who have been already working in the place in question, and no one underbids him; but the agent states a lower price, and that is accepted. In such a case as this, where the contract is taken by the party which had it before, it is generally throughout the mining districts, but more in some parts than others, a rule among the men not to disturb those who have been in possession of a "pitch." It is the assurance springing from this rule which sometimes induces a party of miners, when a new "pitch," one which has not hitherto been worked, is set up, to take it for nothing, or next to nothing. They expect thereby to establish themselves in the mine, and in that particular contract ; and on the next setting-day they probably obtain a remunerating price.

68. There is of course an opposition of interests between the owners whom the agent represents, and the labourers; and the object of the latter is to make the former believe the ground harder and the vein poorer than they are. He on the other hand forms his own judgment on these points by an accurate examination within a day or two of the setting; and he fixes his price, the most part, so that average wages may be gained by the men. It is clear, however, that where a "tribute pitch" is at present poor, he must be cautious in giving a higher price, as there is always a possibility of a rapid increase in the size of the lode, and the value of its produce.

69. The contracts are commonly good from one setting-day to another, or for two months; but longer terms are often given, where the work to be done is known to be of very equable value.

70. The setting-day is usually the pay-day likewise. Accounts are given to each party, stating the value of their work, and the deductions to be made from it. The sum due to the "concern" is received by one of its members; and it is divided afterwards among themselves. One considerable item in these bills is what is called "subsist," which is an advance made "on account," at the end of the first month of the contract, for the subsistence of the men and the payment of the boys. Its amount is commonly determined by the value of the work already done. But in some mines the sum advanced is always nearly the same; where the men are relied upon for continuing at their work, this pay is allowed for a number of successive months; until at length their contract becomes more profitable, and they are enabled to discharge the arrears.

71. A few specimens of these bills will give a just notion of the fluctuations of the miner's earnings, and also of the various particulars which must be estimated by the miner as well as by the agent in determining the price which will probably remunerate the one, and not commit the other by an overcharge on his employers.

Dolcoath Tribute Pay.

17th April, 1841.

WILLIAM RULE.—Two Men and two Boys.

					£.	*s.*	*d.*
Amount 60*l.* 3*s.*, at 13*s.* 4*d.*					40	2	0
	£.	*s.*	*d.*				
Mixing and dividing	0	5	1				
Grinding	0	5	10				
Box and drawing	1	6	10				
Smiths' cost	1	13	11				
Candles and materials	3	9	7				
Powder	1	6	10		8	8	1
Subsist					10	6	0
Doctor					0	1	6
					18	15	7
					£21	6	5
Club					0	13	2
					£20	13	3

For Jan and Feb., 1841.

Dolcoath Tutwork Pay.

17*th April*, 1841.

JAMES RICHARDS & Prs.—Six Men.

	£.	s.	d.
Driving 2 fathoms, at 10*l.*	20	0	0
,, 1 fathom, at 8*l.* 10*s.*	8	10	0
	28	10	0

	£.	s.	d.	£.	s.	d.
Box and drawing	0	12	6			
Smiths' cost	2	1	4			
Candles and materials	3	16	5			
Powder	1	17	11	8	8	2
Subsist				0	0	0
Doctor				0	1	9
				8	9	11
				£20	0	1
Club				0	10	0
				£19	10	1

For March, 1841.

North Roskear Pay.

March, 1841.

JOHN GLANVILLE & Prs.

	£.	s.	d.
Amount 544*l.* 10*s.* 6*d.*, at 6*s.*	163	7	1
,, 31*l.* 18*s.* 3*d.*, at 5*s.*	7	19	6
	£171	6	7

	£.	s.	d.	£.	s.	d.
Subsist	36	2	6			
Materials, &c.	20	13	10			
Doctor	0	4	0			
Club	0	8	0	57	8	4
				£113	18	3

North Roskear Pay.

March, 1841.

JOHN MICHELL & Prs., driving.

Fthms.	Ft.	In.		£.	£.	s.	d.
1	4	6	at	13	22	15	0
2	0	1	at	11	22	3	0
Watching Engine, Sundays					1	10	0
					£46	8	0

	£.	s.	d.	£.	s.	d.
Subsist	0	0	0			
Materials, &c.	14	18	4			
Doctor	0	4	0			
Club	0	8	0	15	10	4
				£30	17	8

Trethellan Pay.

January and February, 1841.

JOHN RODDA & Prs.

	£.	s.	d.	£.	s.	d.
Tribute of ores, 32 tons 10 cwt., at 4*l.* 1*s.* 6*d.* per ton	134	5	6			
Decrease	9	12	3			
	£124	13	3, at 4*s.* 6*d.*		28	1 0

	£.	s.	d.	£.	s.	d.
Debt brought forward	6	3	3			
To 46 lbs. candles, at 8*d.*	1	10	8			
,, 4 lbs. powder, at 9*d.*	0	3	0			
,, hilts 1*s.*, handles —, rods 1*s.*	0	2	0			
,, shovels —, clay 4*d.*, cans 1*s.*	0	1	4			
,, locks, sieves, dags	0	0	0			
,, paper, barrel	0	0	0			
,, smith cost	0	11	0			
,, drawing	2	0	9			
,, subsist	9	0	0			
,, doctor and club	0	3	4			
,, dividing, weighing, and samples	1	6	4	21	1	8
				£6	19	4

Trethellan Pay.

THOMAS MOYLE & Prs. — *February*, 1841.

	£.	s.	d.	£.	s.	d.
By stoping bottom of the 45-fathom level, west of Thomas's Winze, 5 fathoms, at 90*s*.	22	10	0			
Stems	0	9	0	22	19	0
To 50 lbs. candles, at 8*d*.	1	13	4			
,, 48 lbs. powder, at 9*d*.	1	16	0			
,, hilts —, rods 13*s*., clay 1*s*.	0	14	0			
,, paper —, cans —, dags 2*s*.	0	2	0			
,, shovels, nails, barrels	0	0	0			
,, bowls —, spales 5*s*., slings 8*d*.	0	5	8			
,, smith cost	1	13	5			
,, drawing	5	0	0			
,, subsist	6	0	0	17	4	5
				£5	14	7
Doctor and club				0	5	0
Balance				£5	9	7

Fowey Consolidated Mines.

December Ores. — *6th February*, 1841.

WM. COLLUM & Co.

Tons.	Cwt.	Qrs.	Per Ton £.	s.	d.	Amount £.	s.	d.	Increase £.	s.	d.
3	3	0 at	4	17	6	15	6	5	0	5	5

	£.	s.	d.
Real amount 15*l*. 11*s*. 10*d*., at 15*s*. from 20*s*.			11 13 10
Cash	7	0	0
Smiths' cost	0	1	1
Dressing cost	0	5	0
Club 3*s*., doctor 1*s*.	0	4	0
Spale	0	0	0
10 lbs. candles	0	6	8
lbs. powder	0	0	0
Hilts	0	0	0
Shovels	0	0	0
Shovel-hilts	0	0	0
lbs. hoop iron	0	0	0
Barrow	0	10	6
Barrel	0	0	0
Sieve and handles	0	0	0
Riddle and handles	0	0	0
lbs. tallow	0	0	0
Copper nails	0	0	0
Brooms	0	0	2
Washing-tub	0	0	0
Powder-cans	0	0	0
Kibble and ropes	0	0	0
coils sump-rods	0	0	0
Slings	0	0	0
Carriage	0	0	0
Railing	0	0	9
lbs. nails	0	0	0
oil	0	0	0
24 feet safety-rod	0	1	0
tar	0	0	0
Paper	0	0	0
Grinding, Drawing, Dividing, Assaying — at 6*s*. 8*d*. per ton.	1	0	11
Subsist	0	0	0 — 9 10 1
			£2 3 9

Fowey Consols Mines.

Pay for January Month. — *13th February*, 1841.

JAMES JENKIN & Co.

	£.	s.	d.
Driving the 4-fathom level east of Mundic shaft on lode, 1 fathom, at 100*s*.	5	0	0
Driving ditto, ditto, 4 ft. 6 in., at 110*s*.	4	2	6
Carried forward	£9	2	6

Fowey Consols Mines—*continued.*

	£.	s.	d.	£.	s.	d.
Brought forward				9	2	6
Deduct cash	3	0	0			
Smiths' cost	0	17	6			
Club	0	3	0			
Doctor	0	1	0			
Spale	0	2	6			
24 lbs. candles	0	16	0			
30 lbs. powder	1	0	0			
Pick-hilts	0	0	0			
Shovel	0	0	0			
Shovel-hilts	0	0	0			
Barrows	0	0	0			
Barrel	0	0	0			
Debt W. & B., folio 48	0	9	11			
Copper nail	0	0	0			
Powder-can	0	0	0			
Paper	0	0	0			
Hoop-iron	0	0	0			
Tallow lbs.	0	0	0			
Slings	0	1	0			
Pitch	0	0	0			
1 lb. nails	0	0	3			
Kibble and rope	0	0	0			
Safety-rod, 168 feet	0	7	0			
Sump-rod, coils	0	0	0	6	18	2
				£2	4	4

72. Besides the main body of tributers and tutworkmen, a number of other men are employed in the mines. The several grades, proportionate numbers, and relative pay of these may be best seen from the following account of a great mine, the Fowey Consols. The statement of the other articles of expenditure in the mine, and of the income, is likewise given, as it will furnish very full information as to the general pecuniary management, and the consumption of different materials in the more extensive and deeper mines :—

The following is a Synopsis of the quantity of Ores raised, and also the *Proceeds* and *Expenditure* of the Fowey Consols Mine, in the parish of Tywardreath, in the county of Cornwall, for one year, ending the 31st December, 1838; together with a *Statistical Account* of the number of persons employed, their average monthly wages, &c. :—

	Tons.	Cwt.	Qrs.
Quantity of ores raised within the above time	15,771	7	0

	£.	s.	d.
Amount of proceeds for ores sold, including the carriage-money paid for the same	95,190	8	9
Total amount of expenses for the year	76,691	16	3
Amount of profit in 1838	£18,498	12	6
Amount paid to the adventurers in six dividends	17,408	0	0
Amount added to the reserved fund	£1,090	12	6

The expenses may be divided under the following heads, viz. :—

Amount of agency, including purser, clerks, and storekeeper	£1,428	13	6
,, Lord's Dish, or dues, &c.	5,510	2	7
,, smithery (including boiler and chain-makers)	1,179	2	3
,, carpentry and sawing	730	2	4
,, masonry	183	10	4
,, pitwork, timberwork, and capstaning	808	0	0
,, mapping, dialling, &c.	170	2	0
,, engineer, and engine-men working pumping-engines, and rent of water	1,656	3	2
,, tutwork, or work underground in prosecuting a mine for discovering ore, by driving levels, &c.	14,718	6	8
,, tribute, or underground work, in extracting ores when discovered or laid open	21,825	15	6
,, sundry surface labour, and sundries	1,727	3	0
,, charges on ores	2,020	10	8
,, drawing, filling, and landing	2,734	5	3
,, parochial rates and compensation for land destroyed	428	13	8
,, carriage of ores, &c., and freights of materials	4,049	7	2
,, counting-house expenses	167	2	1
,, paid to sick labourers of both sexes, from the sick-club, when unable to work	721	19	5
,, paid for medical attendance	321	12	0
,, Stores	16,311	4	8
	£76,691	16	3

Under the head of *Stores*, the following articles may be considered as constituting the principal items, making the above sum of 16,311*l.* 4*s.* 8*d.*, viz.:—

	Tons.	Cwt.	Qrs.	£.	*s.*	*d.*
Coals, including carriage. &c., to the mine	2,208	16	1	2,021	12	1
Iron, of various sizes and descriptions	148	18	2	1,500	0	10
Steel, ditto ditto	5	13	1	218	4	6
Patent flat and round ropes	32	1	2	1,201	2	2
Candles (7121 dozen lbs.)	33	3	0	2,155	18	10
Best Russia tallow	5	11	2	304	16	2
Gunpowder (86,100 lbs.)	38	8	3	1,658	0	0
45 hides of leather (2390 lbs.)	1	1	1	224	6	7
425 fathoms of patent iron chain	2	5	1	73	4	0
95 bags of nails of various descriptions	7	2	2	165	3	5
Foundry bills for castings, including a new steam-engine and weighing-bridge				2,150	8	2
57,759 feet of debenture timber (Dram and Longsound				3,041	7	1
1044 ditto yellow and red pine				79	4	9
1232 ditto American oak				155	1	9
300,000 ditto patent safety fuze (12,500 coils)				472	17	11
1133 dozen pick and shovel hilts				115	8	11
1290 yards engine shag and poldavey				67	11	6
1356 gallons of cod-oil				197	4	4
221 ditto rape-oil				42	9	2
25 dozen of copper powder-cans				41	5	0
Sieves, riddles, and stamps grates				167	11	9
Account-books and stationery				36	0	10
Sundries, of various descriptions				222	4	11
				£16,311	4	8

The following is a Statistical Account of the Agents, Labourers, and others, employed in and on the foregoing Mine; exclusive of Carriers, and those casually employed, viz.—

Designation.	No.	Average Monthly Wages. £.	*s.*	*d.*	Remarks.
Agents, &c.	13	9	3	0	Agents, 7; Clerks, 5; Storekeeper, 1.
Engineers	1	8	8	0	
Mapper and Dialler	1	8	8	0	With occasional assistance from a Clerk.
Tributers	338	3	10	9	Less 2*s.* per month, viz.—1*s.* 3*d.* for Sick Club; 3*d.* for Death Fund; and 6*d.* for Medical Attendance, as hereafter expressed.
Tut-workmen	360	2	19	9	
Sump-men	44	3	12	5	
Boys underground	15	0	17	6	Employed Blowing Air Machines.
Day Labourers ditto	140	2	12	0	Maximum, 3*l.* 5*s.*; Minimum, 1*l.* 19*s.*
Day and Monthly Labourers at the surface	196	0	0	0	Including Smiths, Carpenters, Engine Men, Trammers, Dividers, &c., &c.
Boys employed at surface	302	1	0	7	Maximum, 1*l.* 12*s.* 6*d.*; Minimum, 8*s.* 8*d.*
Women and Girls ditto, ditto	324	0	16	3	Ditto, 1*l.* 3*s.* 10*d.*; Ditto, 8*s.* 8*d.*
Total Number employed	1734				

Dated 23rd March, 1839. WM. DAVIS, Purser of the Mine.

73. The proportionate numbers of tributers and tutworkmen, and of the boys associated with them, as well as of the boys and girls employed on the surface, and their average earnings, in the different Cornish districts, are stated by Mr. Seymour Tremenheere, in the following table:—

Estimated Proportionate Numbers Employed (per cent.)	Estimated Rate of Wages per Month. Eastern District. £.	*s.*	*d.*	Midland District. £.	*s.*	*d.*	£.	*s.*	*d.*	Western District. £.	*s.*	*d.*	Average.
30 Tributers	3	11	7	2	15	0	3	2	0	3	0	0	
20 Tut-workmen	3	1	11	2	12	6	3	0	0	2	10	0	
10 Surface Labourers	2	2	0	2	5	0	2	3	0	2	2	0	
25 Boys	0	17	10	1	8	0	0	13	0	0	15	0	
15 Females	0	14	0	0	18	0	0	12	0	0	13	0	
100													

74. The relative numbers, however, of the different classes vary exceedingly. The tribute system in some mines preponderates, in others the tutwork; and in some instances even the ore is raised on the owners' account. The great difference in the wages of the boys arises chiefly from their employment at an earlier period in some mines than in others. A more detailed statement on this point will be given hereafter.

75. The adult miner earns at present from 40s to 65s in the month by his own labour. In many instances, having both sons and daughters employed, he takes from the mine £8 or £10 on the average in the same period. By such circumstances, or by successful contracts, he is able to accumulate and realise some property. The deposits in the savings banks in Cornwall are stated by Mr. Seymour Tremenheere to be £281,541, and two-thirds of this sum at least are said to belong to individuals now working, or who have worked, in the mines. From a statement also of the amounts deposited by the several parishes in the Penzance Savings Bank, it appears that the sum received from persons residing in the parish of St. Just, the population of which are chiefly miners, is £8586; a sum very little less than that contributed by the large town of Penzance, and more than twice as much as was deposited from any other parish.

76. The miners living in the country, or in those towns and villages which have sprung up of late years around the mines, occupy for the most part decent cottages, often containing four rooms, often not more than two. In the middle portion of the central district they are usually built of stone, and are frequently collected in rows, having a very cleanly and neat appearance — each with its little garden in front. Thatched cottages are more frequent in the western district, and cob-walls in the eastern:— although in both a great many well-built stone houses, whether separate or in rows, are occupied by miners.

77. But a very great number of miners are now located on leaseholds of an acre or two, on which they have built a house.* It has been the practice of landlords possessing waste ground to lease it in small lots for three lives at a high rent of a few shillings per acre, on condition that a house of a certain value is built upon it. On the setting up of a new life a fine of from £25 to £50 is paid (Evidence, p. 830, 1.46); or if the landlord does not allow of renewals, the lease is again sold for three lives.

78. A description will be found in the Evidence (p. 838, 1. 19) of the method often adopted by the miner in building his house. These cottages are totally devoid of picturesque effect, but they are commonly as roomy and comfortable as those of any class of labourers in this part of England. In some cases, however, not in connexion with the above holdings, hovels of a very miserable description have been constructed by miners of a less reputable class, now and then in places excavated in the sides of hills, so that on one side, if not on two, the roof rises but little above the adjoining ground. It is chiefly on the outskirts of the mining districts that dwellings of this inferior character are found.

79. Agricultural pursuits are congenial to the miner, and when he only undertakes the charge of a small extent of ground, which he can sufficiently cultivate without breaking in upon his regular occupation at the mines, he is usually benefited both in health and finances. The moral effects of the possession of a house and garden and little farm of his own, and of the consequent employment of his leisure hours and of those of his family, are still more importantly advantageous. The attempt to combine the cultivation of a farm of several acres with regular mining engagements is seldom successful. The small capital acquired by a fortunate "tribute pitch" is swamped in this vain endeavour; and the care and toil involved in it tend to exhaust instead of recruiting the mental and physical powers. It will be seen in the Evidence (p. 839, 1. 9) that men so situated are also considered by the agents less eligible for employment.

80. Among the many benefits resulting from the fixing of the miner on a plot reclaimed by his own industry, and in a dwelling which he can call his own, one incidental evil has been noticed; the distance which he is obliged to walk when, as often happens, the mine in which he was employed when he settled on a particular spot ceases to give him work, and he is compelled to seek it in those which are more remote. He will in such cases sometimes travel six or even eight miles between the mine and his home twice in the day. In other instances he obtains lodgings in the neighbourhood of his place of work, and returns to his home to spend the interval between his last turn of labour in one week and his first in the following (Evidence, p. 847, 1. 66). But many, who are obliged to go still farther for employment, are separated altogether, during long periods, from their wives and families.

81. The facility with which the miner is able to obtain a piece of ground on a building lease varies very much in different districts; partly in proportion to the

* It is stated by Mr. Seymour Tremenheere, that “of 685 miners, of whom the question was asked, 161, or nearly one-fourth, were possessed of cottages of their own. The cost of building a cottage is from £35 to £50."

relative denseness of population to the quantity of unoccupied land, partly in connexion with the disposition of the lords to grant such leases. In those parts which many large mines have been long worked, towns and villages have sprung up, and the greater number of miners are unprovided even with a garden. In such neighbourhoods the land is also of course generally cultivated. Where the mines are more dispersed, and the wastes more extensive, no other difficulty but the disinclination of some landlords presents itself to the establishment of the miner on his little farm. Even in the former situations, however, it is a common and growing practice for the farmer to allot and prepare as potato-ground for the miner as much land as the latter can supply with adequate dressing for the subsequent tillage of corn.

82. The quantity of this dressing which the miner can obtain depends in great measure on his opportunities for cutting turf and furze, the ashes from which constitute most valuable additions to the produce of the pigsty; an appendage which the thrifty miner generally contrives to annex to his cottage. A supply of potatoes* sufficient for the greater part of the winter is often obtained by the miner through this arrangement, besides cabbages or other vegetables. The pig is a subsidiary source of income in this way as well as by its more direct valu [sic], which indeed often arises rather from the gradual accumulation of small sums, which might otherwise be wasted, effected in the feeding, than from the difference of amount between the ultimate price obtained and the items of outlay.

83. In the extreme western district the different collateral aids which contribute to the comfort of the miner are perhaps more concentrated than in any other. A cow is there sometimes kept by several conjointly, when the quantity of land occupied by each is small. On the same principle a fishing-boat is often kept by eight or ten individuals, and at times furnishes an abundant supply of what is in that neighbourhood, whether in a fresh or salted state, the chief food of the people, next to bread and potatoes.

84. The deposits made by miners in the savings-banks have been already stated (No.75); the improvement of land and the building a house are of course other modes of accumulating earnings. In many instances further sums are invested in houses. Benefit societies have been established in almost every neighbourhood, the usual principle being that of giving pay during periods of inability to work from sickness, distinguishing between those who are confined to their houses and those who are able to get out. A sum is also generally given, on the death of a member, to the surviving relatives; and this is provided by a separate contribution from the other members. The scales of payments are in a great number of these societies so injudiciously arranged, and so little discrimination is exercised in the admission of members, that the fulfilment of their engagements has been found impossible.

85. There is in these mines, without any exception it is believed, a sick-fund. The most frequent rate of contribution to this fund is 1s for the men and 6d for boys underground, monthly. This is regularly deducted from their pay, as may be seen in the specimens of bills given in a former section. In return, the men are allowed 1s a day and the boys 6d when they receive an injury in the mine, during the time they are detained by it from their work; and they are provided with surgical attendance. Neither pay nor medical aid is given in cases of sickness. In many instances, however, where the medical man receives 6d or more per month, he engages to give his attendance both to the miner and his family in all attacks of disease. The above are the most general rates of contribution and of pay; but the practice is by no means uniform. The following are examples of the systems adopted in different mines, as stated in the returns:—

At Dolcoath there is a mine-club, having a capital of £1500, for the benefit of wounded, injured, or distressed workmen and boys, supported by a contribution of 6d in the pound on gettings, 1d in the pound on merchants' bills, and a percentage on Lords' dues. Girls are very averse to paying towards a sick-fund: it has been attempted here and failed.

The plan of the club at East Wheal Crofty is nearly the same. It is further thus described in a letter from the agent, Mr. Tredinnick:—

The club belonging to this mine has £1500 in the savings bank in the name of Lady Basset as trustee, to defray the expense of which the men pay 4d in the pound from their earnings, which enable us to add £60 or £70 per year to the amount in bank, and also to give monthly pay to all widows whose husbands met with their deaths in this mine, so as to keep

* From 30 to 60 perches may be thus sown with potatoes. About two bushels (Winchester) to a perch is a fair crop.

them from parochial relief. Every man, whilst unable to work, occasioned by hurt received in the mine, obtains 1s. per day, and likewise every boy 6d. per day: if families are distressed we relieve them according to the extent of the case.

By another return from this mine, it appears that during the eighteen months from January, 1840, to June, 1841, £301 14s. 2d. was given by the club. Of this sum about £100 was allotted to seven widows; £9 6s. to the expenses of three funerals; £10 in cases of distress occasioned by a fever; and £35 in bedding supplied to men of the largest families, and who were most in need, at Christmas last: the remaining sum of about £146 having been given to the sufferers from the accidents formerly enumerated.

The arrangements at Fowey Consols are thus stated:—

Each miner receives 30s. per month during illness under certain restrictions, and the females 12s. per month, besides an allowance of £5 to the widow, or representatives, on the death of each miner. For this the miners allow from their monthly earnings 1s. 6d., and the females 1d. upon every 5s. of their monthly earnings, not exceeding 5d. in all.

Examples of slight differences from these scales may be found in Balleswidden, where 8d. a month is paid by the miner, and he receives 5s. a week; in Wheal Owles, where for the same advantage he pays 9d. a-month; in Treleigh Consols, where 6d. per month (besides the 6d. for the surgeon), ensures him 1s. a day;* and in the Ashburton mines, where a contribution of 1s. per month secures nothing to the miner but medical attendance.

At Wheal Uny, in addition to the provision of 30s. per month and medical attendance in return for 1s. per month from the miner, "one-thirtieth share of the mine is carried on by the proprietors for the benefit of the miners; the profit thereon to be employed for their physical and moral improvement, or comfort, in such manner as the majority of proprietors shall from time to time determine."

86. The foregoing statement will furnish materials for a sufficiently accurate estimate of the ordinary income and resources of the miner; his expenditure comes next to be considered. The following household accounts have been furnished from different districts. The first is a list of the articles contained in a miner's dwelling, consisting of two rooms, for which, with a garden, £2. 10s. per annum was paid. The couple are said to have been married under circumstances not particularly favourable:—

No. 1.

	£.	s.	d.		£.	s.	d.
Kitchen table	0	10	0	Brought forward	3	6	0
chairs	0	7	6	3 knives and forks	0	1	6
Baker and iron	0	4	0	3 teaspoons	0	3	0
3 spoons	0	0	3	3 rummers	0	1	6
3 wine-glasses	0	0	9	Teatray	0	2	0
Spare table	0	4	0	Chamber-brush	0	1	6
Bellows	0	2	0	Earthenware pan	0	0	6
2 water-pitchers	0	0	6	Looking-glass	0	1	6
Wash tray	0	2	6	Bed and bedding	5	0	0
3 cups and saucers	0	0	6	Clothes-box	0	10	0
Set of china	0	7	6	Firegrate	0	3	0
Buffet	1	0	0	Teakettle	0	2	6
2 candlesticks	0	2	0	Candlestick	0	0	3
Form	0	2	6	Plates and basins	0	5	0
Iron crock	0	2	0	Contingencies	1	0	0
Carried forward	£3	6	0	Sum of above	£10	18	3

For miners marrying in circumstances of rather more comfort, the following addition may be made:—

To the quality of the above articles	3	10	0
Watch or clock	1	10	0
Extra clothes, and ring	5	0	0
Expenses, fees, &c., on wedding-day	1	0	0
Chest of drawers	2	2	0
Bible, &c. &c.	0	10	0
Total	£24	10	3

* At Wheal Budnick the same scale is adopted. The rules of this mine-club (the only printed ones met with) are given in the Appendix (B).

It is added, that although many get settled with less than this sum, it is frequently doubled.

The following examples of housekeeping expenditure, in connexion with different amounts of gettings, will sufficiently explain the usual economy of the miners :

No. 2.

This is a specimen of frugal management, from the parish of St. Just, in the Western Cornwall District :—

One Week's Account for a Man and Wife and three Children.

	£.	s.	d.
Barley, 20 lbs.	0	2	0
Wheat, 5 lbs.	0	0	11¼
Potatoes, 6 gallons	0	2	0
1 lb. of butter	0	0	10
1 oz. of tea	0	0	2
Salt 1*d.*, pepper ½*d.*	0	0	1½
½ lb. of treacle	0	0	2½
3 lbs. of fish, at 2*d.* per lb.	0	0	6
1 lb. of pork	0	0	7
½ lb. of soap	0	0	3½
Soda, blue, and starch	0	0	3¼
	£0	6	11
House-rent 1*s.* 6*d.*, fuel 1*s.* 2*d.*	0	2	8
	£0	9	7
(Candles from the mine.)			4
Per month	1	18	4
To pay club and buy clothes	0	5	8
	£2	4	0

	£.	s.	d.
Average gettings now	2	2	0
Extra stems	0	2	0
	£2	4	0

When an improvident person has her pay-day, she will have, the first week, "a frolic," as the miners call it. This will cost—

	s.	d.
For the Cake :—		
¾ lb. of currants	0	6¾
½ lb. of sugar	0	5
1 lb. of butter	0	10
Saffron	0	1½
3 lbs. of flour	0	6¾
For Tea :—		
1 oz. of the best black and green	0	6
Minus at the end of the month	3	0

The labourers now receive about 9*s.* or 10*s.*; but have their fuel for a trifle, also potato-ground, which make their wages equal to about 11*s.* per week.

The next accounts are from the Central Cornwall District.

No. 3.

A man, wife, and six children consume per week,—

	s.	d.
1½ peck of flour	9	0
½ peck of barley	0	10
¾ lb. butter	0	9
½ lb. lard	0	4½
1½ lb. pork	0	9
Dry fish	0	4
Coal	0	11
Snuff	0	2
Sugar 2½*d.*, candles 3½*d.*,	0	6
Soap 6½*d.*, soda, starch, &c., 1½*d.*	0	8
Seldom much butcher's meat, except on the pay-day, say about 4*d.* weekly	0	4
Weekly outlay	15	1
Yearly rent	£4	0 0

	£.	
Wages :—Man	3	per month.
Three children	1	„
	—	„
	£4	

No. 4.

Another similar family incurs monthly such a bill as follows; wages and rent as above:—

	£.	s.	d.
Fine flour	1	10	4½
Barley	0	7	2½
Sugar, currants, soap, &c. .	0	3	4
Lard 3*s.*, butter 4*s.*, candles 2*s.*	0	9	0
Starch 4*d.*, tea, tobacco, &c., 4*s.*	0	4	4
	£2	14	3

No. 5

The following is from the parish of Gwennap, in the same district. The miner's age is 47, that of his wife 45. They have been married 26 years, and have had 12 children. of these 4 are dead, and 1 is married. His highest wages have been 55s. per month. The whole gettings of the family are now as follows:—

			£.	s.	d.	
Constance,	21	years old, earns .	0	15	0	per month.
John,	19	,, .	2	0	0	,,
Richard,	17	,, .	1	6	0	,,
James,	14	,, .	0	16	0	,,
Elizabeth,	12	,, .	0	2	0	,,
Total with his own wages			£7	10	0	

The monthly expenses are these:—

	£	s.	d.
"Shop," *i. e.* flour, barley, soap, starch, tea, butter, &c.	3	10	0
Coals and candles	0	8	0
Market, (meat, &c.)	1	0	0
Shoes, and clothes	1	5	0
Sundries	0	15	0
	£6	18	0

"Charity" (a rare item this!) £1 per annum.

Rent was formerly paid at £4 per annum; but a neat substantial house is now built on lease, with a good garden, and almost paid for. The whole family are comfortable and respectable.

87. A large sum was formerly expended by the miners in beer—in some cases estimated to have been 30s. in the month. The average of this outlay is now reduced to an amount comparatively small. Tobacco is very generally used, often to an extent injurious to health,* but the cost is not heavy.

88. The uncertain amount of the earnings of the greater part of miners, their almost penniless condition at one time, coupled with their hope of comparative affluence hereafter, have led to the establishment of a system of credit in the mining districts, which, while it accounts for the subsistence of men who undertake to work for two months at a time for nothing, or less than nothing (for they have to make good a positive outlay), also accounts for much of the embarrassment in which a very great number of miners are constantly involved. The statement given in a letter which will be found in the Appendix (C) with respect to the central district is, it is feared, nearly true of the others.

89. The court in which the vice-warden of the Stannaries exercises a summary jurisdiction in cases of debt between parties connected with the mines, has, within the few years during which it has been in operation tended to check the practice of running in debt, and it has afforded a remedy against fraud: but the system of giving credit must be extensively followed, as the only one which will give customers to the tradesman, until habits of prudent forethought have become much more characteristic of the miner than they have hitherto been.

90. The system of "tribute", although tending to develop the intelligence of the miner by the variety of particulars on which his judgment must be exercised, and to stimulate his exertion by the hope of large possible gains. is found in its general effect lessen, rather than augment, his financial prosperity. Naturally leaning to the more sanguine estimate of his prospects of success, and consequently spending.

* See a letter from Mr. Pace Appendix (E).

his present receipts as if they were rather to increase than diminish, he finds himself ill-prepared for a reverse. His position also imposes on him, more than on other classes of miners, the necessity of obtaining supplies upon credit, and together with an enhanced price of articles less economical in kind entailed by dealing, under these circumstances, at small retail shops, he incurs all the incidental evils attendant on the state of a debtor who is, for the time at least, insolvent. Regular earnings, though of less amount, are seen to be associated with a more frugal outlay, and therefore more permanently comfortable condition:

I may state (says Captain Davis) that our *tutworkmen's* wages have averaged nearly £3. per month for some years past, and with this some men of frugal habits appear to live comfortably, and rear a numerous family without in any way becoming a burthen to their parishes; whilst the *tributers,* whose wages generally average front 10s. to 15s. per month more than the tutworkman (though sometimes for months together their wages may be very low), are for the most part in debt, and some to a considerable extent, where they have not been so fortunate for a long time as to have what the miners call a "sturt," to liquidate them from their pecuniary difficulties.

A remark having the same bearing is made by a magistrate (Ev. p. 830,1. 29), that the extent of disorderly conduct, the earliness of marriage, and the consequent embarrassments, generally increase with the rate of wages.

91. In a subsequent part of this Report, a detailed statement will be given of the proportion of individuals engaged in mining labour, and under the age of 18, who are able to read and write. With the view of ascertaining whether any considerable number obtained instruction at a later age, some adult miners who were able to write were taken indiscriminately from the whole body in certain mines in the different districts, and, together with their signatures, the period and place at which they had learned to write were taken down. The following are the results :—

Table 10.—Showing for a certain number of Adult Miners able to write in the several Districts, the average *Age* at which they learned, and where they obtained Instruction.

Mine.	District.	No. who have written their Names.	Age at which they learnt.				Where they learnt.			Average present Age.
			Under 10.	10 to 15.	15 to 20.	Above 20.	Day-school.	Evening-school.	Self-taught.	
Levant . . .	Western	17	2	13	..	1	15	2	..	23·6
Balleswidden .	Do.	22	..	..	..	..	9	4	9	..
North Roskear	Central	12	5	3	1	3	7	2	3	33·1
Trethellan . .	Do.	31	15	3	6	7	19	2	10	..
Consols . .	Do.	7	7	..	..	..	7	..	..	26·5
Fowey Consols	Eastern	30	15	8	5	2	23	3	4	35·
Wheal Friendship	Devon	31	25	3	2	1	27	3	1	30·
Total . .	.	150	69	30	14	14	107	16	27	29·6

92. On the whole it appears that no considerable proportion of the adult miners have acquired the art of writing after they have become independent agents.* It is probable that the same may be said with truth of the art of reading, but the number of men or boys who cannot read at all is not very great.

93. The direct instruction which has been received by the existing race of miners will appear, then, to be small in amount. The miner is, however, to speak of the class, not only an intelligent labourer, he is a man of considerable knowledge as well. His *intelligence* is, probably, in part, derived from his tribal origin, as a degree of quickness of apprehension is a quality possessed by the natives of the West generally. But it is in the miner called forth and constantly exercised by the nature of his calling, involving as it does almost continual occasion for thought, and by the system through which he obtains the reward of his labour, the amount of which is dependent on his calculating correctly a great many particular probabilities (Ev. p. 849, 1. 62). The *knowledge* possessed by the miner is chiefly the result of the frequent intercourse maintained among the individuals of the class, and with mine-agents and likewise with the ministers of religion. Newspapers and tracts of various kinds are also circulated largely among them. When a man is not only a

* Having under my eye a body of about 400 miners, I desired those who could write their names to separate themselves from the rest. About two-fifths ot the party did so. This was in the neighbourhood of Camborne, where the means of instruction are more than commonly accessible, and in a mine the returns from which show a more than average number of the boys employed able to write. In the Levant Mine, in the parish of St. Just, in the Western District, of 30 men, taken as they followed each other up from under ground, 16 wrote their names fairly, and 1 badly; of the remaining 13, 4 are entered as unable to read, and 5 as reading badly.

miner, but a builder, a farmer, and a fisherman as well, no surprise will be felt at his being both intelligent and well informed.

94. The miner of the West of England is a man of frank and independent manners. He is not often insolent, but he is usually blunt. Something beyond this must be said of many, of the younger men especially. Indeed rudeness; a want of civilization, is the most unfavourable feature of the mining as compared with the urban or agricultural classes.

95. Political questions have not hitherto excited any very intense interest among the miners; but measures of an administrative kind which have touched their local interest or attachments have at times excited them into riotous combinations. The introduction of the New Poor Law system caused some exhibitions of this description. The exportation of corn or potatoes has always been looked upon by them with great jealousy.

96. Many circumstances have conspired to give a character of independence, something American, to this population. The mine adventurers, the real employers, are not brought into contact in any way, as masters, with the working mines; so that the agents, men taken for the most part from their own ranks, are the only superiors with whom they have to do. The system again by which the contracts are let, gives the takers entire freedom to make what arrangements they choose among themselves; and each man feels, as a partner in his little firm, that he meets his employers on nearly equal terms. The tributer, likewise, entertains a hope - often realized, if he is a good miner - that some fortunate contracts will put him on a parity as to station with the wealthier individuals near him, who have for the most part, at no remote period, occupied some of the lower steps of the ladder on which he himself stands.

97. But this independence of manner is too often associated with a condition of embarrassment and poverty very far from that successful issue of the miner's speculative life to which allusion has just been made. The history of a great portion of miners is this: a youth of 18 obtains the wages of a man; before he is 20, he forms a connexion with a girl employed at the mines, with whom he continues to associate, or, as it is said, to "keep company", till they mutually think he is established in sufficient gettings to allow of their being married (Ev. p. 830, 1. 30), or very frequently till the circumstances of the female make marriage indispensible. Most commonly some provision is made, either by a small accumulation, or by the contributions of parents, for the purchase of a scanty supply of furniture; though this is by no means always the case (Ev. p. 841, 1. 62). The family now increases rapidly; and the wife, though often industrious, having no knowledge of household economy, the earnings are found barely sufficient at the best. Whenever a check occurs from the failure of employment, the badness of a "pitch," or sickness, the necessaries of life must be obtained on credit.

98. As long as the children are too young to work at the mines, the degree of embarrassment increases with their number. But their earliest capacity for labour is eagerly laid hold on as the means of rescue. Education, if any has been obtained, is interrupted at once, and a life of toil is imposed almost before the child has tasted what life is. That toil is not, indeed, severe or injurious in kind, whilst the child continues at the surface, but it occupies nearly all the day.

99. The same necessities which first occasioned this evil to the child soon induce a much more serious one, the transferring him to under-ground work at the earliest opportunity, as by this change his earnings are considerably augmented; and subsequently, on the same principle, the boy is prematurely taken into partnership with the men, and both his own and his father's powers are taxed to make good the amount of work which is their contingent.

100. In the course of these years it must almost always happen that the father will suffer more or less from illness. Perhaps he has gone through the same stages which his son is now pursuing (Ev. p. 831, 1. 7), and has had his own strength exhausted by too early labour, and he may likewise have inherited some morbid predisposition. In any case he finds he cannot afford himself a respite from labour, if it is possible for him to continue at his "place"; and, consequently, what might have been a trivial ailment, is often aggravated into dangerous, perhaps permanent, disease.

101. His children born under such circumstances will be originally feeble in constitution, and the sustenance obtained by them will not be calculated to strengthen it. The boy will therefore be ill fitted to contend with the injurious agents to which he will be exposed in his place under ground, and the fare which his home supplies

will be far from adequately restorative. But the mischief resulting to the boys will be reverted to hereafter; as respects the adult miners, it is unquestionable that circumstances such as those above described are a principal cause that so many widows with large families of young children are found in the mining districts, that the signs of premature decay are so conspicuous in the care-worn faces of a great number of men not yet advanced into middle life, and that poverty, embarrassment, and insolvency are of so frequent occurrence.

102. No one circumstance in the miner's life is so prolific of evil as this irretrievable step; a marriage contracted between parties immature in body and unformed in mind; unacquainted with the most simple rules of economical expenditure and domestic comfort, and totally unprovided with resource against any of the unfavourable contingencies of life. It is clear, however, that a delay of marriage, if attended by a deterioration of morals, must be deprecated rather than desired, and that it is by the establishment of a superstructure of prudence on the foundation of religion, the future improvement of the mining classes in this particular can be alone secured.

103. The miners of the West of England are a religious people. Having been in some of the principal mining districts reclaimed from a state of semi-barbarism and deep ignorance in comparatively recent times, they exhibit a tendency to enthusiasm, recurring in paroxysms, such as is usually witnessed in the period which intervenes between the first communication of religious truth and the prevalence, among the body of the people, of a sober and settled faith. Their Celtic origin may also in part account for this disposition.

104. But evidence of the most conclusive kind of the real influence of the great doctrines of revelation on the heart of the miner is constantly exhibited in an habitually excellent and religious life, in equanimity under suffering and privation, and in calmness and resignation where death is known to be inevitable. Nothing can indeed be more admirable than the cheerful confidence with which, in the trust of a future life, the miner contemplates that termination, often an early one, of his labours. To the ministration of the Church of England, exercised by an able and excellent body of clergy, and to the persevering zeal of the Wesleyan Methodists, whose system has been found particularly congenial to the miner's character of mind, is to be attributed the diffusion, instrumentally, of this vital Christianity.

105. This description applies of course to only one class of miners; a class, however, so numerous, that its qualities become prominent features of the whole body, when it is compared with other communities. Of a great number a very different account must be given. The faults of character most frequent among the miners are such as are usually found to prevail among half-civilized people. The rudeness which has been already noticed is the manifestation of a temper which exhibits itself at times in savage outrage,* and now and then in ferocious crimes. The offences against property, with the exception of small thefts in the mines, bear the same stamp, being for the most part highway robberies, which are rare; or larcenies, such as the stealing of poultry and fruit, and poaching, in which there is as much of lawless frolic as of dishonesty. It is particularly among the young men and lads that the contempt of authority manifested in these and similar acts is prevalent; and it is among these that Sabbath-breaking, the cause and effect of bad propensities is, in some districts especially, habitual. Drunkenness is universally stated to be less common than heretofore; but it is still a very frequent practice to hold carousals after the pay-day, and fights and riots very often arise on such occasions.

106. The following statements by some of the most able magistrates acting in the several districts will furnish materials for a just estimate of the average infraction of the law and good order by the miners. The question submitted was the following:

What is the general estimate formed by you of the relative prevalence of orderly and moral conduct among persons employed in mines and other large works in this country, and others not so employed?

* Whilst writing these pages instances of *both* have occurred. The only parts of Cornwall in which, at the recent election, personal assaults on political opponents were committed were in the Central Mining District. In the same district, since that time, a party of thirty miners are said to have taken a woman violently into the fields, and to have subjected her to all the outrage which licentious brutality could suggest.

From the extreme Western District, the answer received from a gentleman who has paid much attention to statistical inquiries at home and abroad was this:

Those employed in mines are not so orderly as those employed in other branches of labour. The former have more time on their hands than the latter. They are also less subject to a master's control, not living at all in the employer's house, but merely going to the mine-works for a portion of the day. The employment of great numbers together leads to dis-order; the system of meeting on Saturdays, and at other times, provincially termed holding "choruses" …. extends its evil influence to the young.

From the western portion of the Central District, towards Camborne, a magistrate living in the midst of a mining population has supplied these remarks:

I have lived in the midst of a large population of miners for 18 years, and have frequently boasted of their general good conduct, under great temptations from agitators and deputations from other districts, and from pressing poverty at home; and that I have never, in my constant intercourse with them, experienced the slightest incivility, although I have sometimes, as a magistrate, been obliged to punish them for drunkenness and fighting, in consequence of the prevailing practice of dividing their wages at public-houses.

The opinions of a magistrate resident in the town of Redruth in the middle portion of this district will be found in the Evidence (p. 830, l. 25). From the midst of the great mines in the eastern part of the same district, an able magistrate transmits these observations:

I think the miners and others employed in large works are less orderly and moral than the others. One but not the sole cause of this difference arises from the circumstance of miners congregating in large numbers on market-days at the adjoining town, where it not unfrequ$_e$ntly happens they become intoxicated, and quarrels, sometimes of a very serious nature, take place. The habits of the other labouring classes are not such as draw them together in considerable numbers at any particular time or place.

In a separate communication this gentleman says:

Crime of great enormity is, I hope, rare in these parishes, though I fear I could enumerate *four murders* (two of infants) in this parish in *five* years; in no case has conviction followed. Petty thefts - garden and orchard robbery are very frequent; and much vice, as drunkenness, &c., is too apparent, especially with the young unmarried miners. I attribute this to the causes I mentioned the other day, viz. neglect of parents; Sabbath-breaking; the habit of dividing wages at public-houses and, not the least, to the long interval (16 hours) between their turns of work. This accounts for their crowds of idle youths you may at any time see about our roads, in blacksmiths' shops, and such like resorts; this will also account for the consequences of idleness. Evening-schools, if well regulated, would, in my opinion, be one the most effectual remedies that could be applied.

Another magistrate of long experience remarks:

It is impossible to form any comparative estimate between these classes. I have often been struck with the number of offences committed by young persons of both classes. These offences are chiefly acts of violence to the person, and most commonly the instrument is a *stone.* Severe injuries are sometimes inflicted by throwing stones; and sometimes by striking with a stone in the hand.*

With reference to the Eastern District, a gentleman than whom no one on the bench has had larger experience, or is held in more deservedly high estimation, observes:

I have no reason to say that there is less orderly or moral conduct among persons employed in mines or other large works in my neighbourhood than among those not so employed. I cannot, however, but believe that when people of any age congregate in large masses, without efficient discipline, there must be, generally, a greater tendency to disorderly conduct, than under other circumstances.

Another active magistrate in this district writes thus:

I should say that one to three was a favourable computation to the miner, as I believe they offend in a greater ratio, and that most certainly as regards property; and that not only on the ground that the miners as a body are much more prone to mischief than the agricultural classes, but that their *hours* of going to and returning from their labour are in many cases most unseasonable. A large proportion of the fowl and duck stealing may be traced here to lads about 16 or 18, connected with the working of the lower class of fire-engines, who have every now and then opportunities of roasting, or, what is more common, baking in clay the produce of the farm-yard.

I would observe that in tin-works and clay-works, though there is a congregation, it is of a far different kind, from the copper and tin mines under-ground. There are no public-houses very near the former, where vice may be taught on the wholesale - no private nooks where it may be projected in retail - no return from work at night to facilitate their depredations. I do not know so much of the character of the china clay-worker as of the stream-tinner, but

* I suppose *sticks* do not grow in that country.

I should take them to be much alike. They have many hours of leisure, during which they labour as husbandmen, and they seldom appear before us in any way.

From the extreme east of Cornwall, in the neighbourhood of Launceston, in which there are several manganese-works, one eminent magistrate writes:

Not an unfavourable estimate; though there are sometimes local disadvantages which may operate otherwise; for instance, a mine may be in some retired part, with a beer-shop or two in its immediate neighbourhood. Otherwise, I believe, the miners are as well-behaved as others of the labouring class. Of course, some allowance must be made where numbers congregate.

With respect to the Devon District, a very able and experienced magistrate, residing near Tavistock, gives his opinion as follows:

I think that orderly and moral conduct is not so prevalent among persons employed in mines and other large works as among those not so employed.

There are in this division two woollen manufactories as well as several extensive mines.

Taking Cornwall as a whole, it would appear, from the criminal returns, that crime is increasing more rapidly than population. From 1821 to 1831 the increase of population was 17·47 per cent. In the three years ending 1836 the total number of convicted offenders was 429; in the three years ending 1839 it was 570. Of these, in the former period, 64 in the latter, 105, were under 16 years of age. The proportion of offenders to the population is in Cornwall less than one-half that in England and Wales.

107. This is not the place for entering into any detailed consideration of the means by which the condition of the miner may be improved; but the interests of the children and young persons employed are so closely interwoven with those of the adults, as to demand a few cursory remarks on that subject. In the first place, the greater part, if not the whole, of those beneficial arrangements which have actually been carried into effect in some mines, might be adopted in all. The principal of these are: 1. Making it a condition in the contracts that no level shall be less than six feet in height and three feet in width. 2. Reducing the distance of the staves of the ladders to 10 inches from top to bottom; and making the inclination from 18 inches to 21 inches in the fathom. Penthouses should also be fixed above the landing-places (sollars), so as to secure the orifice (manhole) leading to the next ladder from bodies falling from above. 3. Driving a shallow level from the shafts in which the footways are placed to the changing-houses, so that the men may come up into them from under-ground without being exposed to the external air. 4. Warming these changing-houses effectually, and furnishing accommodation for the drying of the clothes. 5. Providing an abundant supply of warm water, in which the men may wash, which is most effectually done by means of baths, as at North Roskear (Ev. p. 839, 1. 44). 6. Furnishing some warm and nutritious fluid to the miner when he comes to the surface, as at Dolcoath (Ev. p. 837, 1. 60). With respect to other points, where the experiment of philanthropy has yet to be tried, the recommendation of any particular measures would be out of place. A few suggestions may, perhaps, be allowed. *(a)* Several mine-clubs might be instanced as exhibiting different excellencies of plan, but it may be doubted if any of them combines all that is attainable by such institutions. Medical attendance should be secured in all illness, both for the miner and his family. Pay should be given in all illness to the miner, on a graduated scale. These objects are effected more or less perfectly in some of the mines. But injustice is often done to the miner by the universal arrangement, in two ways. If the mine fails, the fund sinks with it; the miner is left with provision. If he quits a mine, though he has contributed many years to the club, and has never derived any advantage from it, he has no claim upon it afterwards. Benefit societies exist in most neighbourhoods, but their system is not always the most judicious; and it seems probable that the addition of the principle of these societies to that of the sick-fund, or the establishment of such societies on a sound system, in connexion with the mines and with the co-operation of the employers, would obviate the risk of a provision being never made, or of the providence of the miner being frustrated by the miscalculations or mismanagement of his club. *(b)* The deposits made by miners in the savings banks have been very considerable; but it is the opinion of competent judges that they would be much larger, if the place of deposit were nearer, and more frequently open. Some arrangement might be made for the receipt of small sums, at times and places convenient to the men. Closely connected with such facilitation of economy, is the payment of wages in a manner that will obviate all inducement to visiting the public-houses for the purpose

of dividing the earnings of a party. Without great additional trouble, every individual might be separately paid. *(c)* The efforts of public benevolence in *(sic)* behalf of the miner have been of late years directed to the introduction of some method for the lessening the toil of his ascent in the deeper mines. If a safe and practicable plan can be devised, it will doubtless give great relief to the miner, and will probably lengthen his days; and it will also materially facilitate the carrying on of those mines which are already worked at a depth of from 200 to 300 fathoms. No such method has been yet in operation in these mines. Some remarks on the subject will be found in the Appendix (A).

108. These preliminary remarks on the conditions of the mines, and of the adult miners, were necessary to the perfect understanding of the details respecting the children and young persons employed in those mines, which I am about to give. Before proceeding to these details, it will be right to state the means by which they have been ascertained. These were :

1st. The sending the printed queries and tabular forms to almost all the mines the district. It will be seen that the returns to these embrace a great majority of the whole class concerned.

2ndly. The sending the printed educational queries to all the clergy, and to the leading ministers of dissenting bodies, in the several mining districts. To these a sufficient number of returns have been made to afford unexceptionable materials for a just estimate on the points to which they relate. A few of the special educational queries were also addressed to well-informed laymen, and from them some valuable answers have been obtained. A few of the tabular forms for Sunday-schools have also been filled up.

3rdly. Written queries were sent to the medical men chiefly practising among the mines, soliciting the results of their experience. Some, also, of the printed special queries issued by the Board were put into their hands. Information of a valuable kind has been obtained from this quarter.

4th. Written queries were addressed to one or more magistrates resident in each district. They have, almost without exception, replied in a very obliging and effectual manner.

5th. 1 have visited the whole of the districts, including mines of any importance west of the Fowey Consols, near Lostwithiel, or about 60 miles in length. I have *accurately examined* the arrangements, places of work, and the children and young persons employed in the following mines of different metals *in* the several districts :—

TIN

Eastern District.—Charlestown United Mines. Central District.—South-East.—
Carnon (Diluvial).
North-East.—Polberou Consols.
South.—Wheal Lovell.
West.—Wheal Vor.
Western District.—North-East.—St. Ives Consols. West.--Balleswidden.

COPPER.

Eastern District.—Fowey Consols.
Central District.—East.—Consolidated Mines, Trethellan, Tresavean.
Middle.—East Wheal Poole, East Wheal Crofty, Dolcoath, North Roskear.
West.—Trevasens, Relistian, Wheal Friendship.
Western District.—Levant.

LEAD.

Central District.—North-East.—Cornubian, East Wheal Rose.

I have more cursorily inspected, but with sufficient minuteness to have detected any difference between them and those which were more critically examined, the following mines:—

COPPER.

Eastern District.—Par Consols. Central District.—South Roskear.
COPPER AND TIN.
Central District.—Cambrea, Tincroft, Carzize, West Julia
Western District.—Providence Mines, Botallack.

In the course of this investigation I have seen the positions and general arrangements of almost all the mines within the limits stated; and on former occasions I have had the opportunity of assuring myself that there is no material difference in

these respects in the mines in Devonshire.* The dwellings of the miners have been often inspected, and their domestic condition ascertained, on this occasion as well as previously.

6th. I have examined and noted the depositions of different parties connected more or less with the mining population. Care was taken that, among the parties belonging to the labouring class, there should be a representation of the different sexes, ages, and employments; at the same time, the individuals were taken indiscriminately, and I believe their testimony was given without deceit or reservation. The patients examined were some of those who presented themselves casually, in the course of a few weeks, for my advice, and their statements are given without selection, in order that a true notion of the usual characters of the ailments of this class may be gained. The other persons examined were selected for their superior knowledge in the different departments of the inquiry.

7th. Elucidation of various particular points was attained by written or personal communications with individuals considered the most likely to furnish the information required.

I will now proceed to state the results of the inquiry with which I have been charged, into the employment of the children and young persons in these mines, following the division of the subject pointed out in the Instructions from the Board.

I.—AGES AND NUMBER OF CHILDREN AND YOUNG PERSONS.

The returns made on the tabular forms give the names, ages, and other particulars respecting 6035 individuals, of whom 1584 males and 535 females are stated to be under 13, and 2331 males and 1585 females to be from 13 to 18 years of age. The returns made to the queries state the numbers employed in certain mines to be, under 13, 1235 males and 550 females, and those between 13 and 18 to be 2229 males and 1364 females. The addition of the children and young persons whose names have been returned on the tabular forms, from certain mines from which no returns to the queries have been made, will raise the totals stated above as deduced from the latter to 1639 males and 696 females under 13—and to 2720 males and 1740 females between 13 and 18. The total number of children and young persons employed in the mines respecting whom returns have been made is therefore 6795, of whom 4359 are males and 2436 females. The number of persons above the age of 18, stated in the returns to the Queries as being employed, is 14,737, being 12,580 males and 2157 females. If to these be added the usual proportion of adults for those mines above mentioned, for which returns have been in the tabular forms, but not to the Queries, the total number of adult males employed in the mines from which returns have been obtained will appear to be about 15,500, and that of the adult females 2700. The following is then a general summary of the results :—

Above 18, or Adults.		13 to 18, or Young Persons.		Under 13, or Children.	
Males.	Females.	Males.	Females.	Males.	Females.
15,500	2700	2720	1740	1639	696

This gives a total of 24,995 persons employed in the mines in question.

The whole mining population in Cornwall has been estimated at from 28,000 to 30,000. That of Devon may be taken at about 1500. Returns have been obtained from all the more important mines, with the exception of four or five. The persons employed in these and in several smaller works, together with the omissions in the returns made, may be calculated to amount to less than one-third.

* Having resided for five years at Tavistock, in the centre of the most important mining district in Devonshire, and having been for four years physician to the public dispensary in that town, I was familiarly acquainted with the condition of the miners in that neighbourhood. I may take this opportunity of stating that I have not thought it necessary to institute very extensive or very minute inquiries into the particulars of the instruction furnished in the schools in these mining districts; that subject having been recently very thoroughly examined, and most ably reported on, by Mr. Seymour Tremenheere, for the Committee of Council on Education. I shall borrow some of his statements, and make reference to others, both directly and indirectly belonging, to the department which he has treated. On the other hand, the methods of investigation pursued under the present inquiry have procured a great mass of details concerning the actual condition of the mental culture of the children and young persons, constituting a very important Supplement to the earlier Report.

† I must not omit the expression of my strong sense of obligation for the kindness and courtesy with which I was almost everywhere received, and for the ready co-operation lent by the parties above referred to in the furtherance of my inquiries. Many of their names occur in the pages of this Report and of the Evidence connected with it; and I beg to associate all these gentlemen in this general acknowledgment with those magistrates, clergymen, ministers of dissenting congregations, and private individuals, whom I have not thought it well to name in connexion with the statements of facts or opinions contributed by them to this Inquiry.

of the total given above. On the whole, the number of children and young persons employed in the mines of West Devon and Cornwall may be safely taken at from 9000 to 10,000; and of these about 3000 are under 13. It will be remarked that the proportion of females is much larger among the young persons than among the children.

111. There is no reason to suspect any material inaccuracy in the statement of the ages. Time was allowed for application to the parents, and the day of birth was generally ascertained. The returns may be relied on with sufficient confidence as regards the number of the children and females. They are not equally trustworthy with respect to lads of 16 and upwards; those especially who are employed under ground. There has been, it is believed, no intentional concealment on the part of employers; but from their not being commonly accessible during the hours when the entry of the names was convenient to the managers, these boys have probably been often passed by altogether; and more frequently classed with the adults. In other cases, an apprehension was felt among them that the inquiry was likely to lead to some interference with their liberty. This is mentioned especially by Capt. Davis, the manager of the Fowey Consols, in these terms:

> I have not a doubt, from the great reluctance displayed amongst the youths in getting their names registered, and answering the several Queries, under an impression that a war is about to take place, and that this step is preparatory to their being called upon " *to go as soldiers,"* as they term it, that many at present working *under ground* are returned amongst the *adults,* though under 18 years of age.

In other places, the dread of a forced emigration, "being stationed off," was entertained. Altogether there is reason to believe that the number of *youths* employed under ground in some of the mines from which returns have been made is much greater than is there stated. But this subject will be further alluded to when the nature of their employment is considered.

112. The particulars of the ages and number of the children and young persons employed in each mine, distinguishing its produce, and those who work under ground, are stated in detail in the following tables (see pp. 766 to 770), in which the several mines are arranged geographically, nearly as they follow in succession from west to east.

113. Between the several divisions, some differences will be noticed. The proportion of females, and especially of female children, is materially less in the Western District of Cornwall (Table 11) than in the others. The returns are in this point in accordance with direct observation and inquiry.

114. The existing state of the employment of children and young persons in the mines of the West of England, as inferred from the returns, is that the boys begin to work at the surface between eight and nine, and the girls between nine and ten. Some few commence in each case a year or two before.

115. Females are never employed underground in these mines. A few boys go underground between nine and ten. The number increases with each year afterwards. The proportion of children now employed underground is very different in different mines. A part of this difference is certainly to be attributed to the imperfection of some of the returns; but much of it really exists and arises from the different demand for the labour of children in different mines. The principal employments of children underground are working air-machines, where they are necessary, and wheeling stuff from parts where railroads are not laid down. When therefore a mine is well ventilated, and the work is carrying on in parts from which the stuff can be removed in tram-waggons, there is little occasion for young boys. In other instances all or nearly all the workings are at too great a depth to admit of the serviceable employment of these very young hands. To go under ground is almost always an object of ambition to the children themselves, and the effecting it is often the privilege of those who have more interest than their comrades, as a father or a brother ready to take them into their party. Higher pay and shorter hours of work are the chief inducements to this preference (Evidence, p. 851, 1.21; p. 853, 1. 36).

116. It will be seen that a large number of boys are returned as working at the surface between 9 and 10 years of age, and that this reaches its maximum between 12 and 13: afterwards it gradually lessens, whilst the number employed under ground steadily increases. The girls on the other hand are not very numerous until they are more than 11 years old, and their number goes on increasing till they reach 16, when it remains stationary. The total number of females above 18 years of age is rather greater than that of those below 18.

TABLE 11.—Showing the Number and the Ages of the Children and Young Persons employed in certain Mines.

Division I.—Cornwall Western District.

Mines.	Produce.	Number, &c., according to the Returns made on the Tabular Forms.																																		Ditto, Returns to the Queries.							
		7 to 8			8 to 9		9 to 10		10 to 11		11 to 12		12 to 13		13 to 14		14 to 15		15 to 16		16 to 17		17 to 18		Under 13		13 to 18			Above 18, or Adults.		13 to 18, or Young Persons.		Under 13, or Children.		Total employed.	
		Males.		Females.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M	F.	M.	F.											
		Under ground.	Surface.		U.	S.	U.	S.	U.	S.	U	S.	U.	S.	U.	S.	U.	S.	U.	S.	U.	S.	U.	S.	U.	S.	U.	S.		M.	F.	M.	F.	M.	F.	M.	F.
Boscaswell Downs	Tin	..	..	..	..	1	..	4	..	3	..	3	4	..	3	2	..	2	3	..	4	2	..	3	..	..	1	..	..	..	..	6	14	..	10	5	..	135	2	15	..	20	..	170	2
Wheal Owles	Tin	..	..	..	..	..	1	..	..	..	..	..	2	2	..	..	1	..	3	4	..	6	..	..	..	1	..	8	2	..	3	1	..	3	3	..	20	8	..	165	..	24	..	10	..	194	..
Boscean	Tin	..	..	..	..	..	..	..	..	..	1	2	..	1	1	..	1	1	..	1	..	..	4	1	..	3	..	..	2	1	..	4	..	..	3	4	..	14	2	..	78	..	16	..	7	..	101	..
Levant	Copper and Tin	..	..	..	..	..	1	..	..	4	5	..	4	3	1	7	8	3	7	10	2	15	2	3	6	1	2	12	2	4	14	2	10	16	16	4	54	17	21	390	24	67	14	36	5	493	65
Park-noweth	Tin	..	..	..	1	..	..	3	..	..	6	..	1	8	..	2	8	..	2	3	..	..	5	..	1	1	..	1	4	..	..	4	..	3	26	..	4	17	..	76	1	7	..	8	..	91	1
Balleswidden	Tin	..	1	..	1	..	..	5	..	..	9	..	..	11	..	..	4	..	..	6	1	..	3	1	..	6	3	..	8	7	..	2	5	..	31	..	..	27	17	535	18	40	17	52	..	627	35
Bosweddan	Tin	..	..	..	..	..	..	1	..	..	2	..	..	1	..	..	1	..	1	4	..	3	4	..	..	1	..	2	2	..	3	2	..	..	5	..	9	13	..	81	2	24	..	7	..	112	2
Botallack	Copper and Tin	..	..	..	..	..	..	..	..	..	4	..	..	4	..	2	1	..	2	1	1	4	4	..	2	1	..	3	..	..	1	..	..	2	9	..	12	6	1	133	16	19	10	13	1	165	27
Ding Dong	Tin	..	..	..	..	..	..	3	..	..	2	..	1	6	1	..	5	1	1	3	1	2	8	..	6	2	3	8	3	2	1	..	6	1	16	2	18	16	12	250	13	34	11	17	3	301	27
Trevidgea	Tin	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	1	..	..	..	..	..	2	..	..	1	..	..	..	..	..	1	..	..	3	..	..	4	..	51	3	3	1	3	..	57	4
Reeth Consols	Tin	..	..	..	2	..	..	2	..	..	3	..	..	5	..	..	9	..	..	6	1	1	4	..	1	6	1	2	2	1	3	1	..	..	21	..	7	19	3	107	15	26	3	21	..	154	18
Wheal Reeth	Tin	..	..	..	..	..	..	2	..	..	2	..	..	2	..	..	2	..	..	1	..	..	2	2	..	1	1	3	2	1	3	1	1	..	8	..	6	7	5	71	8	13	5	8	..	92	13
St. Ives Consols	Tin and Copper	..	1 five years old.	..	..	4	..	4	..	5	..	9	..	1	12	..	1	3	3	1	8	2	4	7	1	4	1	1	4	1	2	1	35	..	14	20	9	351	12	34	9	37	..	422	21
Providence Mines	Copper and Tin	..	..	..	..	..	..	..	..	..	2	..	1	1	..	2	3	1	1	3	2	..	3	..	4	3	1	2	3	1	4	..	2	3	6	1	11	12	6	102	8	23	4	9	1	134	13
Lelant Consols	Tin	..	..	..	..	..	..	1	..	..	3	..	..	2	..	..	2	..	..	1	..	..	3	..	..	..	..	..	..	..	..	..	..	..	8	..	..	4	..	39	3	3	..	12	..	54	3
Wheal Mary	Tin	..	..	..	..	..	..	3	..	..	3	..	..	3	..	..	3	..	..	6	..	..	4	1	1	3	1	..	1	..	2	..	1	..	12	..	3	14	3	132	17	13	3	16	..	161	20
Marazion Mines	Tin and Copper	..	..	..	..	..	..	1	..	..	2	1	..	6	..	..	6	1	..	6	1	..	1	..	3	2	..	3	7	..	1	4	..	15	2	..	13	15	No Return.							
Wheal Darlington	Tin and Copper	..	..	..	..	..	..	1	..	..	6	..	..	6	2	1	1	2	1	5	1	1	4	5	..	5	10	..	4	4	..	5	3	1	14	4	2	23	23	256	31	25	23	13	5	294	59
Totals		..	1, and 1 five years.	..	..	9	..	33	..	64	1	88	4	89	8	87	13	102	15	73	25	86	28	63	34	285	13	411	115	2952	173	382	100	289	15	3622	310
								2	31	5	59	13	75	19	70	22	65	41	61	31	42	48	38	42	21	39	246		184	227		3125		482		304		3932	

TABLE 12.—Showing the Number and the Ages of the Children and Young Persons Employed in certain Mines.

Division II.—Cornwall Central District. Part the First.

Mines.	Produce.	Number, &c., according to the Returns made on the Tabular Forms.																																Ditto, Returns to the Queries.							
		7 to 8			8 to 9		9 to 10		10 to 11		11 to 12		12 to 13		13 to 14		14 to 15		15 to 16		16 to 17		17 to 18		Under 13		13 to 18		Above 18, or Adults.		13 to 18, or Young Persons.		Under 13, or Children.		Total employed.	
		Males.		Females.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
		Underground.	Surface.		U. S.		U. S.		U. S.		U. S.		U. S.		U. S.		U. S.		U. S.		U. S.		U. S.		U. S.		U. S.											
Wheal Friendship (St. Hilary.)	Tin and Copper	..	..	..	.. ..	2	.. ..	2	3 ..	4	.. ..	2	1 ..	4	.. ..	4	.. ..	6	2 ..	5	5 ..	4	6 ..	3	1 ..	14	4	..	22	14	214	45	22	14	14	4	250	63
Wheal Prosper (St. Hilary.)	Copper and Tin	..	..	..	.. ..	..	.. ..	1	.. ..	3	1 ..	4	1 ..	8	.. ..	..	1 ..	5	2 3	3	2 ..	2	1 ..	..	.. ..	16	2	..	10	5	184	33	10	6	16	2	210	41
Wheal Virgin	Copper	..	..	..	.. ..	..	.. ..	3	.. ..	1	3 1	4	2 ..	8	5 1	8	3 ..	6	6 1	2	7 3	1	4 4	..	4 1	16	10	11	10	20	184	28	29	24	16	10	229	62
Trevaskus	Copper and Tin	..	..	..	.. 1	..	.. ..	1	.. ..	2	1 ..	2	.. ..	3	1 ..	4	.. 2	..	1 ..	1	2 1	..	4 1	..	3 ..	9	2	5	5	10	82	30	10	10	9	2	101	42
Carzize	Tin and Copper	..	..	..	.. ..	..	.. ..	3	1 ..	3	.. ..	9	.. ..	5	5 ..	3	3 ..	5	4 ..	1	3 ..	1	4 ..	..	5 ..	20	6	..	10	19	..	..	..	..	..	..	..	..
Wheal Julia	Copper	..	..	..	.. ..	1	.. ..	..	.. ..	1	1 ..	..	.. ..	1	3 ..	..	.. ..	3	.. 1	1	1 ..	1	1 2	..	2 ..	2	4	3	7	4	..	..	10	18	..	..	..	..
Godolphin	Tin and Copper	..	..	..	.. ..	..	.. ..	1	.. ..	7	1 ..	7	2 2	16	4 6	6	5 8	9	.. 8	5	2 5	2	5 9	6	5 2	31	7	36	28	17	..	..	..	..	..	..	..	..
Wheel Speed	Copper	..	..	..	.. ..	..	4 ..	..	.. ..	..	.. ..	4	.. ..	2	4 3	3	6 2	4	3 2	..	12 2	..	3 1	1	5 ..	10	4	10	8	29	95	19	18	29	10	4	123	42
British Silver	Lead and Copper	..	..	..	.. ..	..	1 ..	..	.. ..	2	2 ..	4	1 1	7	4 ..	2	.. 1	4	1 4	5	4 2	1	3 ..	..	7 4	8	19	12	93	10	27	12	8	4	128	26
Duffield	Copper	..	..	..	.. ..	..	1 2	..	2 ..	..	2 1	..	2 3	..	3 ..	..	.. 1	2	.. 1	1	.. ..	2	.. 2	2	.. 7	6	..	7	7	..	..	..	..	..	..	..	..	..
Wheal Vor Great Work. Wheal Trewavas. Wheal Lovell.	Tin (1 m. 6)	..	1	..	.. 12	1 ..	19	4 ..	41	8 ..	39	11 ..	31	10 ..	31	30 1	25	23 1	30	25 ..	10	16 ..	3	36 ..	144	34	2	99	130	..	..	..	..	..	..	..	..
Wheal Vyvyan	Tin and Copper	..	..	..	.. 1	.. ..	1	.. ..	5	.. ..	2	.. ..	1	1 ..	3	.. ..	4	.. ..	4	2 ..	1	1	.. ..	1	.. 10	1	..	12	4	..	..	..	..	..	..	..	..
North Roskear	Copper and Tin	..	..	1	.. 1	.. ..	1	1 ..	4	.. ..	10	4 1	9	7 1	14	10 ..	10	3 ..	6	6 ..	5	6	.. 2	8 1	25	13	1	37	33	320	100	34	33	24	13	378	146
South Roskear	Copper and Tin	..	..	..	.. ..	1 ..	3	.. ..	5	.. ..	5	2 ..	9	1 ..	6	2 ..	3	2 ..	2	2 ..	2	1	.. 2	3 ..	22	4	..	15	10	120	50	37	14	22	4	179	68
Dolcoath Cook's Kitchen.	Copper and Tin	..	..	..	.. 4	2 ..	17	3 1	11	9 ..	6	8 1	20	12 4	11	18 10	8	10 11	6	24 11	2	11	9 ..	11	2 58	34	45	27	74	404	90	70	74	60	34	534	198
East Wheal Crofty East Wheal Poole.	Copper	..	..	..	.. 2	1 ..	5	.. ..	11	2 ..	11	1 4	5	10 3	5	6 6	11	8 7	2	8 7	4	5	6 ..	2	4 34	14	29	22	29	586	200	51	30	32	20	669	250
Tincroft Carnbrea Mines.	Tin and Copper	..	1	..	.. 2	.. ..	5	.. ..	8	.. ..	14	.. ..	8	1 1	12	4 ..	8	2 2	7	2 2	5	2	7 2	..	.. 38	1	12	31	10	..	..	..	..	..	..	..	..
Wheal Uny	Tin and Copper	..	..	..	.. ..	..	.. ..	1	.. ..	3	.. ..	5	.. ..	5	.. ..	5	.. ..	5	.. ..	4	4 ..	..	1	.. 2	6 ..	9	..	..	16	11	135	5	15	9	10	..	160	14
Treleigh Consols Wheal Ellen.	Copper	..	..	..	.. ..	..	1 1	.. ..	..	1 ..	..	2 ..	3	4 ..	1	7 ..	2	11 1	2	7 ..	1	10	.. 1	9 ..	4	8	1	7	44	95	17	7	41	4	13	106	71
Wheal Tehidy	Copper	..	..	..	.. ..	..	.. ..	..	.. ..	..	.. ..	..	.. ..	..	.. 1	4	.. 1	..	.. 2	2	.. 1	1	.. 1	..	.. ..	..	..	6	7	..	50	10	13	..	..	..	63	10
United Hills	Copper	..	..	..	.. 2	.. ..	2	1 ..	1	.. ..	5	3 ..	3	7 ..	..	9 ..	2	5 ..	1	6 ..	1	9	.. ..	11	.. 12	10	..	4	40	170	55	26	31	12	19	208	105
Totals	(1 m. 6.)	..	2	1	.. 26	6 ..	71	16	111	27	132	40	155	79	151	108	149	84	129	122	84	96	67	117	498	168	573	522	2732	712	379	345	237	129	3338	1138

TABLE 13.—Showing the Number and the Ages of the Children and Young Persons employed in certain Mines.

Division II.—Cornwall, Central District. Part the Second.

Mines.	Produce.	Number, &c., according to the Returns made on the Tabular Forms.																																Ditto, Returns to the Queries.							
		7 to 8			8 to 9			9 to 10			10 to 11			11 to 12			12 to 13			13 to 14			14 to 15			15 to 16			16 to 17			17 to 18			Under 13			13 to 18			Above 18, or Adults.		13 to 18, or Young Persons.		Under 13, or Children.		Total employed.	
		Males.		Females.	M.		F.	M.		F.	M.		F.	M.		F.	M.		F.	M.		F.	M.		F.	M.		F.	M.		F.	M.		F.	M.		F.	M.		F.	M.	F.	M.	F.	M.	F.	M.	F.
		Under ground.	Surface.		U.	S.		U.	S.		U.	S.		U.	S.		U.	S.		U.	S.		U.	S.		U.	S.		U.	S.		U.	S.		U.	S.		U.	S.							
Wheal Buller . .	Copper . . .	..	..	..	..	..	..	..	..	..	1	..	1	2	..	5	1	..	3	6	..	1	5	..	1	2	2	4	1	2	..	4	1	2	4	..	9	10	5	8	16	92	19	14	16	9	10	115	45
Wheal Unity Wood.	Copper and Tin	..	..	1	..	2	..	..	4	1	..	2	3	..	6	4	2	3	6	1	2	2	3	1	8	2	1	8	3	1	6	2	..	9	2	17	15	11	5	33	..	..	..	..	..	..	..	..
Wheal Gorland . .	Copper and Tin	..	..	..	..	..	2	..	..	1	..	..	1	..	..	..	1	..	..	1	3	..	2	6	..	..	4	..	1	5	..	1	3	..	1	5	..	1	21	..	4	..	..	..	..	..	..	..	..
Poldice	Copper and Tin	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	8	..	..	7	..	..	5	..	..	5	..	..	10	..	..	1	..	..	35	..	..	..	..	..	..	..	..	..	..	..
Trethellan . . .	Copper . . .	..	..	..	..	..	..	1	..	1	..	..	5	2	..	5	5	1	2	9	2	9	4	2	4	12	2	1	5	3	..	6	..	11	8	10	16	36	..	..	..	..	..	..	..	..	..	..
Tresavean . . .	Copper . . .	..	..	..	2	2	..	9	3	..	12	8	..	18	15	..	17	22	..	14	22	4	23	21	9	12	22	12	12	28	17	7	22	..	58	50	42	68	115	481	143	121	120	72	57	674	326
West Wheal Jewell.	Copper and Tin	..	..	..	..	..	..	1	..	2	1	..	1	..	2	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	3	..	3	..	..	100	15	17	..	7	..	124	15
Grambler and St. Aubin	Copper and Tin	..	..	..	..	..	..	1	..	..	..	..	1	..	..	1	..	..	3	..	..	..	..	..	..	2	..	..	3	..	..	3	..	..	2	1	..	11	..	..	27	2	17	..	1	..	45	2
Wheal Jewell . .	Copper and Tin	..	..	..	..	..	..	2	1	..	1	2	4	1	2	3	3	9	1	2	4	3	1	6	1	2	4	1	7	5	..	1	4	11	6	28	6	13	175	35	..	..	6	7	..	..
United Mines . .	Copper and Tin	..	..	..	2	..	..	5	7	..	8	5	2	20	9	6	17	4	22	17	7	23	7	7	20	14	10	20	8	8	20	8	12	8	52	25	105	37	44	626	182	222	120	62	69	910	371
Consolidated Mines .	Copper . . .	..	1	..	2	3	..	8	2	..	12	9	2	9	20	3	18	26	5	8	26	10	3	35	13	8	16	9	2	23	7	..	24	5	50	60	44	21	124	954	141	234	152	41	146	1229	439
Wheal Busy . . .	Copper and Tin	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	1	2	1	..	..	1	..	..	..	..	..	..	..	..	..	1	..	2	2	3	..	12	12	5	..	2	2	19	14
Hallenbeagle . .	Copper . . .	1	..	..	..	..	..	2	1	4	2	..	6	5	13	7	3	14	7	1	6	7	3	7	13	..	4	12	1	8	5	..	2	18	12	28	44	5	27	300	50	..	..	..	..	..	..
Bissoe Bridge . .	Tin, Copper, and Lead . . .	..	1	..	..	1	..	..	..	..	..	..	7	..	..	5	1	1	7	2	..	6	6	2	6	2	1	1	2	4	5	2	7	7	5	1	21	3	14	25	17	70	6	38	17	22	3	130	26
Carnon Consols . .	Tin	..	..	..	..	..	..	..	..	..	1	..	..	4	..	..	7	..	..	4	..	1	2	..	4	1	..	5	1	..	6	..	..	..	12	..	16	4	..	110	4	26	..	12	..	148	4
Polberou Consols .	Tin and Copper	..	..	..	..	4	..	..	8	..	1	6	1	..	13	2	..	12	3	3	18	6	3	8	5	3	6	8	1	2	4	5	4	6	1	43	6	15	38	29	136	14	48	28	43	5	227	47
Great Wheal Charlotte	Ditto Ditto	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	2	..	..	1	3	..	..	3	..	..	4	..	..	3	..	..	1	..	3	13	61	30	3	13	..	1	64	44
Wheal Betsey . .	Tin	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	1	..	..	1	3	..	1	1	..	..	1	..	..	1	..	..	1	..	4	..	..	2	7	28	1	2	7	5	..	35	8
South Towan, Rose Ann, &c. . . .	Copper . . .	..	..	..	..	2	..	..	7	..	..	4	..	..	4	2	..	7	6	..	10	..	..	1	2	..	..	4	..	..	3	..	..	5	..	24	8	..	11	14	..	..	..	..	..	..	..	..
Wheal Kitty. . .	Tin and Copper	..	..	..	..	..	..	..	3	..	..	1	1	..	6	1	..	7	..	..	6	6	..	2	3	..	5	6	..	3	..	..	1	5	..	17	2	..	17	24	98	12	17	24	17	2	132	38
Wheal Coats. . .	Tin	..	..	..	..	..	..	..	..	..	..	5	..	..	2	..	..	3	..	2	1	2	1	5	..	7	3	1	4	1	..	9	3	1	..	10	..	23	13	4	110	7	35	2	10	..	155	9
Wheal Budnick . .	Copper, Tin, and Lead . . .	..	..	..	..	..	..	8	..	..	7	2	..	5	2	..	3	6	1	5	1	2	5	6	5	3	4	3	3	4	3	1	7	..	23	10	14	17	22	172	21	31	23	23	10	223	54
Perran Mines . .	Copper . . .	..	..	..	..	1	..	..	1	..	..	2	..	..	3	..	..	1	..	..	4	1	1	4	1	3	4	2	4	3	1	2	2	4	..	8	..	10	17	9	74	10	36	9	..	..	110	19
Cornubian . . .	Lead and Silver	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	3	..	..	2	3	..	7	1	2	2	4	1	1	1	3	..	..	1	4	1	6	12	9	93	16	22	10	3	1	118	27
East Wheal Rose .	Lead and Silver	..	..	..	4	1	..	2	4	..	3	2	..	8	7	..	10	5	..	9	7	2	10	5	2	8	9	2	2	4	2	5	2	..	27	19	8	34	27	..	..	..	..	..	..	..	..
Friendly Mine Adventurers, Turnavore, and Wheal Pye	Tin	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	28	9	9	5	..	..	37	14
Totals . . .	. . . . .	1	2				2	61		8	80		14	124		28	130		70	115		78	103		105	77		101	47		113	41		53	417		467	362								
		3			1		20	6	63		21	88		35	138		81	158		111	185		116	186		114	182		120	148		118	154		120	470		255	826		587	3747	729	897	552	335	313	4495	1502

TABLE 14.—Showing the Number and the Ages of the Children and Young Persons employed in certain Mines.

Division III.—Cornwall Eastern District.

Mines.	Produce.	Number, &c., according to the Returns made on the Tabular Forms.																																Ditto, Returns to the Queries.							
		7 to 8			8 to 9			9 to 10			10 to 11			11 to 12			12 to 13			13 to 14			14 to 15			15 to 16			16 to 17			17 to 18			Under 13			13 to 18			Above 18, or Adults.		13 to 18, or Young Persons.		Under 13, or Children.		Total employed	
		Males.		Females.	M.		F.	M.		F.	M.		F.	M.		F.	M.		F.	M.		F.	M.		F.	M.		F.	M.		F.	M.		F.	M.		F.	M.		F.								
		Under ground.	Surface.		U.	S.		U.	S.		U	S.		U.	S.		U.	S.		U.	S		U.	S.		U.	S.		U.	S.		U.	S.		U.	S.		U.	S.		M.	F.	M.	F.	M.	F.	M.	F.
Great Wheal Prosper	Tin and China Clay	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	1	..	..	..	1	..	..	1	..	..	3	1	28	12	3	1	1	..	32	13
J. Varcoe and Co.	Lead	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	2	..	..	14	3	2	..	..	..	16	3
Wheal Messer	Copper	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	2	1	1	..	35	3	2	..	..	2	37	5
Tretoil	Copper	..	..	..	..	1	..	..	4	..	..	2	1	..	6	4	1	4	1	1	3	1	..	6	2	..	4	5	1	..	8	..	4	3	1	17	6	2	17	19	105	25	19	19	18	6	142	50
Wheal Vyvyan.																																														
Tregollen	Copper	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	2	..	..	..	..	1	..	..	2	1	..	25	2	3	..	1	..	29	2
Polgooth	Tin	..	..	..	..	..	..	2	..	..	7	..	1	5	..	1	7	..	..	7	..	..	7	2	1	6	2	6	4	3	3	5	..	2	21	..	10	29	7	140	15	41	7	21	..	202	22
Carnsmorry	Tin	..	..	..	..	..	..	3	..	..	..	..	..	3	1	..	2	..	..	3	..	..	7	1	..	5	5	..	1	..	..	2	3	..	8	1	..	18	9	122	23	18	10	9	1	149	34
Charlestown Mines	Tin and Copper	..	..	..	3	..	..	5	2	..	17	..	..	19	7	..	15	11	..	11	15	..	19	11	..	14	19	..	2	11	..	9	18	..	59	20	..	55	74	430	75	80	86	69	20	579	181
Par Consols	Copper	..	..	..	..	..	..	1	..	1	2	2	..	2	4	..	6	4	..	9	9	1	3	15	3	4	11	4	8	10	..	..	13	1	11	10	8	24	58	199	92	32	58	12	10	243	160
Fowey Consols	Copper	..	..	..	..	3	..	..	11	..	..	23	4	1	6	8	3	42	15	2	38	21	3	33	24	7	21	15	13	13	15	8	6	18	4	85	27	33	111	93	1030	221	145	94	120	27	1295	342
Restormel	Iron	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	2	..	..	5	..	..	1	..	..	..	..	..	2	..	..	2	..	..	10	..	94	..	10	..	2	..	106	..
South Caradon.																																														
Holmbush	Copper	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	173	12	33	17	16	2	222	31
Danescomb	Copper	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	28	1	5	1	2	..	35	2
Totals		..	..	..	1	8	..	27	2	1 51 52	8	3 41 44	24	5 77 82	32	3 73 76	46	4 81 85	55	12 57 69	57	28 29 57	48	11 29 40	55	9 204 213	66	58 269 327	261	2423	484	393	293	271	68	3087	845								

Note.—A very complete list of the mines worked in Cornwall in 1836 and 1837, and of the number of persons employed in them, distinguishing men, women, and children, is given in Sir C. Lemon's excellent paper on the statistics of the copper-mines in vol. i. p. 69, of the Journal of the Statistical Society of London. It may be referred to as exhibiting the rapid fluctuations incident to mining adventure; many mines then employing a large number of labourers being now abandoned, whilst others, then in a nascent state, are now flourishing. The total number employed would seem, however, to be much more constant.

TABLE 15.—Showing the Number and the Ages of the Children and Young Persons employed in certain Mines.
Division IV.—Devonshire.

Mines.	Produce.	Number, &c., according to the Returns made on the Tabular Forms.																																		Ditto, Returns to the Queries.							
		7 to 8			8 to 9		9 to 10		10 to 11		11 to 12		12 to 13		13 to 14		14 to 15		15 to 16		16 to 17		17 to 18		Under 13		13 to 18		Above 18, or Adults.		13 to 18, or Young Persons.		Under 13, or Children.		Total employed.	
		Males.		Females.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
		Underground.	Surface.		U.	S.	U.	S.	U.	S.	U.	S.	U.	S.	U.	S.	U.	S.	U.	S.	U.	S.	U.	S.	U	S.	U.	S.										
Wheal Friendship	Copper and Tin	..	..	..	..	..	2	..	2	7	1	..	7	2	6	10	6	7	7	6	6	14	7	16	10	6	6	19	14	11	7	7	8	4	6	15	33	15	47	54	40	340	30	101	40	48	15	489	85
Wheal Betsey	Lead	..	1	..	..	..	1	..	..	4	1	..	12	1	..	3	2	2	7	1	2	4	1	3	4	..	..	4	1	3	4	2	3	..	..	2	28	5	11	16	4	105	3	27	4	30	5	166	12
Tamar	Lead	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	5	1	..	7	2	..	4	..	..	1	..	..	5	2	..	1	3	..	7	1	..	18	7	110	7	19	12	6	2	135	21
Milton Abbott and Lewtrenchard	Manganese	..	..	..	..	..	2	..	..	..	..	..	8	1	..	12	5	..	8	4	..	5	4	..	9	8	..	10	7	..	7	7	..	7	7	..	30	10	..	38	33	..	..	..	..	..	..	..	..
Birch Tor	Tin	..	..	..	..	..	1	..	..	1	1	..	..	..	..	1	..	..	..	1	..	1	2	1	1	1	..	3	1	..	..	..	1	..	2	..	3	2	2	5	6	38	1	7	6	3	2	48	9
Bottle Hill	Tin and Copper	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	10	11	4	12	..	71	14
Ashburton Mines	Tin	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	84	8	13	8	4	1	101	17
Totals		..	1	..	..	..	6	..	2	12 / 14	3	..	27	4	6	28 / 34	13	9	27 / 36	8	8	31 / 39	16	20	28 / 48	15	6	37 / 43	23	14	23 / 37	18	12	12 / 24	18	17	101 / 118	33	30	131 / 191	90	726	59	178	74	103	25	1010	158

TABLE 16.—Showing the Number and the Ages of the Children and Young Persons employed in certain Mines.
Summary of all the Divisions.

Divisions.	Number, &c., according to the Returns made on the Tabular Forms.																																		Ditto, Returns to the Queries.							
	7 to 8			8 to 9		9 to 10		10 to 11		11 to 12		12 to 13		13 to 14		14 to 15		15 to 16		16 to 17		17 to 18		Under 13		13 to 18		Above 18, or Adults.		13 to 18, or Young Persons.		Under 13, or Children.		Total employed.	
	Males.		Females.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
	Underground.	Surface.		U.	S.	U.	S.	U.	S.	U.	S.	U.	S.	U.	S.	U.	S.	U.	S.	U.	S.	U.	S.	U.	S.	U.	S.	U.	S.										
No. 1 (1 at 5)	..	1	..	..	9	..	2	31	..	5	59	1	13	75	4	19	70	8	22	65	13	41	61	15	31	42	25	48	38	28	42	21	34	39	246	13	184	227	115	2952	173	382	100	289	15	3622	310
2, Part 1 (1 m. 6)	..	2	1	..	25	6	..	71	16	1	110	27	1	131	40	8	147	79	21	130	108	30	119	84	40	89	122	36	48	96	42	25	117	10	488	168	167	406	522	2732	712	379	345	237	129	3338	1138
2, Part 2	1	2	1	..	20	6	2	61	21	8	80	35	14	124	81	28	130	111	70	115	116	78	103	114	105	77	120	101	47	118	113	41	120	53	417	255	167	362	587	3747	729	897	552	335	313	4495	1502
3	..	..	..	..	8	..	..	27	2	1	51	8	3	41	24	5	77	32	3	73	46	4	81	55	12	57	57	28	29	48	11	29	55	9	204	66	58	259	261	2423	484	393	293	271	68	3087	845
4	..	1	..	..	6	..	2	12	3	..	27	4	6	28	13	9	27	8	8	31	16	20	28	15	6	37	23	14	23	18	12	12	18	17	101	33	60	131	90	726	59	178	74	103	25	1010	158
Totals	1	6					6	202		15	327		37	399		69	451		124	114		173	192		194	192		227	185		220	128		128	1456		936	1395								
	7						208		42	342		75	436		162	520		238	538		299	565		283	496		347	412		293	348		344	1584		535	2331		1585	12580	2157	2229	1364	1233	550	15542	3953

117. From the whole of the evidence collected it appears that the most usual age at which boys go to work at these mines is from 8 to 10, and that they go under ground about 12 very commonly, if they are strong and well grown. It often happens that they do not continue to work regularly under ground at this early age; sometimes from the failure of health and strength, but most commonly from a discontinuance of the particular work in which they were employed. In such cases they usually find work at surface, till a fresh opening occurs for an engagement underground. After the age of 14, a boy who had worked under ground would be very reluctant to return to surface labour.

118. The opinion of the best-informed persons is that children are now employed at the mines at an earlier age than they formerly were (Evidence, p. 851, 1. 30). The more necessitous condition of parents is the cause generally assigned for this change (Evidence, p. 830, 1. 60; p. 831, 1. 9, 55; p. 831, 1. 9, 55; p. 834, 1. 47; p. 848, 1. 34). The increased difficulty of obtaining relief under the New Poor Law has also been mentioned as occasioning a greater necessity for the employment of the younger children (Evidence, p. 823, 1. 64). The introduction of machinery for the performing of perticular [sic] operations, previously executed by manual labour, has generally tended to the substitution of younger hands for those before employed. Some details on this subject will be given in the sequel.

II. HOURS OF WORK.

119. The usual length of the working-day for the surface labourers in these mines is ten hours in summer and about nine in winter. Work begins at seven in the morning in summer, and with daylight in winter, and it concludes at five, half-past five, or six, or when it grows dusk. Half-an-hour, three-quarters, or a whole hour, is allowed for dinner in different districts, and in one instance two hours. A short interval is, in a few cases only, permitted about 10 A.M.

120. The hours of labour are often shortened, when the nature of the work admits of its being done by the piece, by the setting of tasks, which can very commonly be completed two or three hours before the regular time of closing. In some instances the young people continue to work on their own account afterwards, but this is not the most common practice (Evidence, p. 824, 1. 25; p. 833, 1. 10; p. 854, 1. 9, 18).

121. On the other hand, the hours of work are often prolonged until seven or eight in the evening; and in some cases work is begun an hour earlier than usual in the mornings as well. This working at extra hours is commonly required when the ore is about to be prepared and arranged for sale, which is termed "sampling." This occurs in some mines only once in two months, whilst in others it is done twice in the month. In some mines it is the practice to employ a number of extra hands at these times, and these being employed by different mines in succession, there is little or no occasion for working beyond the regular hours. But in other cases, and that in some of the largest mines, where the same hands are almost constantly employed, the larger amount of work must be performed by their increased exertions (Evidence, p. 824, 1. 30; p. 833, 1. 13; p. 845, 1. 1).

122. In these cases the day is sometimes disposed of as follows: A boy or girl, from nine to twelve years old, is obliged to rise at about four o'clock in the morning, gets a hasty breakfast, and after a walk of half an hour or more - three or four miles - reaches the mine at six. Work is continued till twelve, without intermission or refreshment, save what may be got by stealth. Half an hour is then employed in taking dinner. The child then works without interruption till eight; gets home, after repeating the walk of the morning, and may have had supper, and get to bed about ten. It is chiefly the younger children who are called upon to begin their work at six o'clock, the process on which they are engaged being preparatory for the others. According to the statement of some of the children at a great mine in which this system is followed, they are employed in this way during about a third of each month in the summer (Evidence, p. 845, 1. 22; p. 846, 1. 5, 33).

123. In some other mines a system is followed for the performance of an extra quantity of work, which overtasks still more the powers of the child, though it is not imposed on so great a number, nor continued so long. The boys are in these cases employed in preparing the ore for sale, from seven in the morning of one day till two in the afternoon of the following, working through the whole night. (See Evidence, p. 852, 1. 19.) In the former instance (120) the extra time is allowed, and

is either paid for according to the number of hours, or it is made up to the children at some less busy time (Evidence, p. 845, 1. 31), in the form of a holiday, no deduction being taken from their wages. In the latter arrangement, a separate payment is made, and being generally given as pocket-money to the boy, he is not at all disinclined to this increase of fatigue (Evidence *ubi supra).* Other occasions arise in which the boys are kept at work during the whole night for the despatch of business (Evidence, p. 846, 1.30); but they are not frequent.* With these exceptions, children and young persons are not employed at night on the surface.

124. The most frequent arrangement of the time of under-ground work is the division of the twenty-four hours into three "courses" of eight hours each, with three relays, so that the place of work is never unoccupied. In this case the relays usually succeed each other at 6 A.M., 2 P.M., and 10 P.M. In other mines, or parts of mines, in which, from the nature of the ground, the work can be rapidly performed, or where from impurity of air or other cause, labour of longer duration cannot be borne, each party works only six hours, and there are four relays of men. They then relieve each other at six and twelve of the day and night; this is usually the case in the "sump," the bottom of the engine-shaft, in every mine. It is the practice of the miners to make a weekly exchange in their turns of work, so that an equal amount of night-work may fall to each. Another very frequent division is that of two relays, omitting the one commencing at 10 at night; and in some cases, where less constant attendance is needed, one party only is employed in a particular place, and the work is then generally taken from seven or eight in the morning till about four in the afternoon.

125. Whatever arrangement is adopted by the miners, the boys are included in it, and continue at work during the same time, except that six hours of the harder work of wheeling barrows is sometimes equivalent to eight hours lighter work, and that they are now and then allowed to go up before the men, if the stuff which they have been employed in removing has been cleared away (Evidence p. 828, 1. 32; p. 832, 1. 2: p. 833, 1. 16). The night-work is taken by the boys equally with the men (Evidence, p. 853, 1. 6, 36, 49), where boys are employed at all by the party: but they are perhaps more regularly required in those places in which the men themselves do not work through the night.

126. The time during which the miners remain underground is materially affected by the manner in which the relays relieve each other. If they relieve at the place of work, as is usually the case in the more considerable mines, the eight-hour term of labour is in fact raised to nine or ten, according to the depth, as the descent into the deepest parts of some of the mines (nearly 300 fathoms) is calculated to occupy about 40 minutes, and the ascent twice as long. Where parties relieve each other at the end of six hours, it is always done "in place", so that the work is uninterruptedly continued. The older miners generally state that this practice of relieving "in place" in the case of the eight-hour course is an innovation, the practice in their younger days being to relieve at surface, one party going down when the other came up (Evidence, p. 851, 1. 36).†

127. But the duration of labour underground is often much more prolonged by the voluntary act of the miners themselves, in working overtime; "double stem," or "double core", as they term it. This is done, either for the sake of profit, where the contract turns out favourably to the takers, and it is wished to make the most of it within the term for which it holds good (Evidence, p. 824,1.39; p. 832,1.15); or to supply the place of a comrade who is prevented from being at his post. In deep and hot places the miner commonly finds the regular course of work quite as much as he can endure (Evidence, p. 825, 1. 66); though even there some of the more robust will at times continue to labour for 12 or 16 hours; but it is in less exhausting situations that this is more frequently done. Mr. Thomas Moyle states in his evidence (p. 832, 1. 5), that when young he had stayed down three turns of 12 hours each successively, with only a brief interval between them, during which he came to the surface and took some food, and that others did the same. The consequent exhaustion prevented him from sleeping when his labour terminated.

128. No example of such excessive perseverance in toil has presented itself in the course of the present inquiry: but the working "double stem" is stated as the

* In some cases day and night work is taken for alternate periods: an instance of this is given at p. 835, 1. 40, of the Evidence. In others it is merely an exceptional occurrence, as in the text. All the party (ten) caught cold. A boy states (Evidence, p. 853, 1. 61) that he worked day and night at the "crushers" four times in six months.

† It is also stated that six-hour "courses' were formerly the most usual. (Evidence, p. 851, 1. 59.)

frequent practice of several of the boys examined (Evidence, p. 825,1. 40). At No. 63 (Evidence, p. 836, 1. 68) an instance is mentioned of a boy working five "double stems" in the preceding week, &c. By the boys this is most commonly done as an act of kindness to a comrade, to prevent his losing his place, as he probably would do if the men were obliged to supply it by a stranger (Evidence, p. 853, 1. 34). In other cases they work overtime for the sake of gaining something for themselves, as it is usual to allow them for pocket-money what they earn at these extra times (1b. 35).

129. From one to three hours may be added to the duration of labour for the walk to and from the mine. The distance of the miner's house is sometimes six or seven miles; but a walk of from two to four miles (Evidence, p. 845, 1. 6, 24) is very commonly the commencement and conclusion of the day's work of the younger part of those employed.

130. Speaking generally, it may be stated that no work is done by children or young persons in these mines on the Sunday; the only exception being the employment of a few in watching the stamps. This is chiefly necessary where water-power is used. Some notice is taken of this Sunday-work in the Evidence (p. 833, 1. 20). The total amount is very inconsiderable.

III. MEALS.

131. Dinner is the only meal for which time is usually allowed. Twelve o'clock is universally the time of leaving work for this purpose. In winter, half an hour is the interval, almost without exception; in summer this is still maintained in some mines; but more usually an extension of time is granted, sometimes to three-quarters of an hour, sometimes to an hour, and in a few cases even to two hours.* In a few places some minutes are allowed about ten o'clock in the morning, when a sort of lunch, called "crowst", consisting of a portion of the intended dinner, is taken (Evidence p. 826,1. 22; p. 843, 1. 9; p. 844, 1. 22; p. 845, 1. 29); but this is by no means frequent. A corner of the pasty is more usually eaten as occasion offers.

132. There is generally but little provision for comfort in taking dinner. In some of the larger mines sheds are appropriated to this purpose, and furnished in winter with sufficient firing; but more frequently recourse is had to the smith's shop, or to the "dry", the place in which the miners' clothes are dried, when the sheds in which the work is carried on, and where dinner is usually eaten, are too cold for the purpose. In the warmer season groups are often formed on some bank or field in the neighbourhood, where the meal is taken. In all cases there is little or no mixing of the sexes at their meal. The younger boys very often eat their pasties almost by snatches, and make the most of the time at some game. The proportion is very small of those who go to their homes to dinner, even when the distance might admit of their doing so; in such cases their food is often brought warm from their homes, and, where several members of a family are employed, they unite at their meal. Preparatory washing or change of dress is seldom practised. There is no work going on during the time allowed for dinner which requires the attention of the young people. The shortness of the time is complained of, by the females especially, where they are limited to half an hour.

133. These remarks refer to those who work at the surface. The under-ground labourers, whether adults or boys, take their food when they choose. The practice is now universal of taking some food with them when they descend, and those who work during the mid-day hours, generally make a substantial meal at about the usual dinner-time; others make use of some lighter "crowst", and reserve themselves for their principal sustenance alter their return to their homes.

IV. NATURE OF EMPLOYMENT.

134. Before proceeding to the detail of particulars under this head, it will be well to give a brief account of the nature of those ores, on the preparation of which for the market the children and young persons at the surface are engaged. The principal questions with regard to the mode of preparation to be adopted are these: for what ores or portions of ores will dressing without the aid of stamping be advantageous; and which will it on the other hand be desirable to carry to the stamping-mill? Under the first division a secondary question will arise whether manual labour, or the machine called "a crusher" shall be employed in reducing

*This was formerly the case much more commonly. (See Evidence, p. 851, 1. 35.)

the ore to the proper size. The specific gravity of the metalliferous particles, and the degree in which they are intermixed in the substance of the stone, are the chief elements on which a decision in these cases is grounded.

135. The most common ore of copper is the yellow sulphuret (bi-sulphuret), or rather copper pyrites. This is frequently combined with (besides stony matter) blende, galena, mundic, oxide of tin, wolfram, and other substances in a smaller degree. The existence of either of these is matter of consideration for the smelter,* in making a proper mixture of ores for the furnace; but the mode of preparing the ores for sale would not be much affected, except that when these substances can be easily separated from the ore in the stone, ores of this kind would be broken by the hammer, and by no means by the crushing-mill: this is generally the case where there is much blende connected with the copper ore.

136. Another reason why the crushing-mill is not more generally adopted, is the difficulty of bringing the ore to exactly the proper size. The average quantity of copper contained in the ore is rather less than 9 parts in 100. If then it is pulverised too finely, which is difficult to prevent, especially when it is not very hard, there is a chance of loss in smelting, from the particles being carried up the chimney by the force of the draughts. For this reason, copper ore which has been pulverized in the stamping-mill, generally sells rather lower than the other ores. In tin and lead ores, however, there is not so much danger of this (although still there is some loss from this cause), as they contain about two-thirds of their weight of metal when they are put into the furnace.

137. The other ores of copper are found in such comparatively small quantities that the large operations in preparing the ores for sale scarcely apply to them. The grey ore, chiefly a sulphuret with a small admixture of iron, is the second in importance, but relatively of rare occurrence. It requires no special difference of treatment from that of the richer portions of the bi-sulphuret. The black ores, of which but a very small quantity is found (usually oxide of copper), are permitted to touch the water as little as possible, as they are often found in particles so fine as easily to be carried off by a small stream.

138. There is probably no metal which exists in so few varieties of ore as tin. Except a little sulphuret of tin, which has been found in combination with sulphuret of copper, all the tin ore is in the state of oxide. The tin and the copper are sometimes so intimately mixed in the ore, and it is so difficult to separate them, as to make it a subject of debate whether it should be sampled as copper ore, or carried to the smelting-house as tin ore.†

139. The richest stream-tin is not taken to the stamping-mill, as it merely requires some reduction of size to fit it to go into the furnace, and all the waste by stamping would therefore be real loss. Parcels may, indeed, be frequently seen, the greatest part of which consists of small pebbles just as they were found in the stream. This likewise requires little or no calcination. But with this exception, tin-ore is all subjected to the stamping-mill. The ore is in itself so rich, and consequently so heavy, that it is easily separated from the stony particles by the power of gravity.

140. This mode would not be advantageous for the copper ores, as the trouble of effecting their separation would be far too great; none, therefore, of those ores are subjected to the stamping-mill, except some of the "halvans", which have been thrown aside from the other processes, and to separate from which the small proportion of ore which they contain, pulverization and subsequent dressing by water must he employed.

141. These ores are further subjected to calcination, with the slight exception stated above. The tin ore which has connected with it the largest quantity of copper and iron pyrites, will naturally yield the largest quantity of arsenic. Copper ore is calcined in order by partial decomposition to get rid of the sulphur and arsenic contained in itself, but tin ore to decompose (not itself but) the ores of other metals connected with it, and to expel the sulphur and arsenic they contain.

142. From the foregoing description of the character of the materials to be operated on, it will be understood that considerable differences must be found in different mines, in the nature of the work, and in the proportionate numbers employed at the several ages; whether arising out of the variety of processes to which it is necessary to subject different classes of ores, or the substitution of machinery for manual labour. It has been seen that tin ores are generally taken

* The smelting of copper-ores in the West of England has been entirely discontinued. It is found more profitable to send them to Wales, as a return freight for the ships bringing coal for the mines.

† The tin ores raised in the West of England are smelted there, and the metal is brought to different degrees of purity for different purposes.

to the "stamps"; a series of washings succeed before the ores are sent to the calcining furnace, and again afterwards, altogether amounting to no less than 100 in some cases, and requiring many hands, though the work is often of a rather light description. The portion of the copper ores subjected to similar processes is comparatively very small indeed; simple selection and pulverising being the only preparation of by far the greater part.

143. In the preparation or "dressing" of copper ores, the first step is the separation of the larger pieces raised from the smaller by a sieve called a "riddle", or "griddle". When this has been done the process of "picking" the valuable portions of the latter from the worthless succeeds, and this is the work in which female children are first employed, while some of the youngest boys are engaged in "washing up", or cleansing the stones previously to this selection; this is usually done in wooden troughs, through which a stream of water flows, immediately in front of the "pickers" (Evidence, p. 822, 1. 22).

144. These little girls are seated, or half reclining on a table, and a small heap of the mineral being thrown before them, they select and put into a basket, or otherwise separate the valuable pieces, and throw back the others into what are called the "boxes", whence they are wheeled by boys to a large heap which is again subjected to examination, This "picking" is carried on under a shed (hutch) which is open on both sides, for the convenience of the washing in front, and of the carrying away the rejected portion at the back.

145. This work is in itself but little laborious; but there is much exposure to cold from the openness of the sheds and the wetness of the mineral, and the posture is constrained, the lower limbs having little or no exercise. The suffering from cold and its effects are accordingly much complained of, but not so much as the exposed situations of many of the mines would lead one to expect. The "washing-up", which is generally effected by the agitation of a sieve under water, occasioning a strain on the back, often causes pain there, and the feet are very frequently wet during the greater part of the day.

146. The "riddling" which has been mentioned as the first process of separation of the larger from the smaller pieces of ore, is usually performed by girls of 16 years old or more. The very large masses are broken or "ragged" by men. Those somewhat smaller are "spalled", by stout girls of the age above mentioned, with long-handled hammers, much in the way in which the larger pieces of stone are broken for the repair of roads. The "riddling" and "spalling" are performed in the open air. The labour is in both cases considerable; its occasional effects may be learned from the Evidence (p. 845, 1. 56; p. 846, 1. 12; p. 852, 1. 33).

147. The fragments are next taken to be "cobbed." This process is performed by girls, generally above 15, who are seated a little above the ground, with an iron anvil at their side. They break the stones with a short-handled hammer to about the size usual in the repair of roads, rejecting as they proceed the worthless and the very inferior parts. The feet and legs of the cobbers are often buried in a heap of these broken pieces of ore, which, being cold and frequently wet, produce a chilling effect, not unconnected, I believe, with ailments of common occurrence among these girls (Evidence, p. 828, 1. 1; p. 846, 1. 6, 16). To obviate this burying, a screen is in many instances interposed between the legs and the anvil.

148. The stones of ore are now taken to be bruised or "bucked'', where the further reduction of size is not effected by the mill called a "crusher" or "grinder", which is now employed in the pulverising of probably a full half of the copper ores raised. The manual process of "bucking" consists in pulverising, by a sort of combined movement of percussion and trituration, the pieces of ore already reduced to the weight of an ounce or two, being chiefly those brought from the cobbers. This is done with a broad square hammer, two or three pounds in weight, which is worked sometimes with both hands, sometimes with one only, whilst the other is employed in sweeping the ore within convenient range. The bucker stands by a sort of counter, having iron anvils let into it at intervals. The pulverised ore is allowed to fall on the ground, from which it is afterwards swept up, and measured into barrows, for each of which a certain price is paid.

149. This "bucking", which is always performed by girls, is considered to be about the hardest work in which they are regularly engaged. The great assiduity commonly exhibited by them, which is indeed necessary to the earning of 10d or 1s a day (Evidence, p. 826, 1. 61), is no doubt followed by a good deal of exhaustion. The less robust are usually obliged to relinquish this work after a short time

(Evidence, p. 831, 1. 38): and many apparently strong girls are unable to continue at it. Pain in the side and back is the most frequent complaint; giddiness and faintness now and then occur (Evidence, p. 828, 1. 47). The "cobbing" and "bucking" are usually carried on in similar, often in the same, sheds, pretty well protected, for the most part, from wet and wind. The richer portions of the ores of lead are likewise reduced in size to the necessary extent by these processes.*

150. The substitute for this method of pulverising copper-ores is the crushing-mill. This consists of two parallel cylinders of iron, placed nearly in contact, one of which is made to revolve whilst the other is fixed so as only to yield to great pressure. The stones of ore thrown in from above are ground between these rollers, and a cylindrical sieve is placed beneath, which, being inclined at an angle of about 45°, and turning on its axis, allows the particles which have been sufficiently pulverised to pass through its holes, whilst the larger pieces fall out at the bottom, and are returned to the mill. The working of this machine is attended with the suspension in the air of a great quantity of mineral dust, often of a very suffocating nature when inhaled even cursorily, but producing serious ill effects when the lungs are exposed to it during many successive days.† The ores are wetted for the purpose of lessening the escape of this dust, and the consequent loss. The extent of evil arising to the persons employed about this mill, among whom there are generally, if not always, some boys, is in a great measure dependent on the continuity with which it is worked. When a very powerful machine is moved by steam, a day or two in the week maybe time enough to grind all the ores requiring this process in a particular mine, whilst in another, where water-power is used, and the quantity of ores great, the " crushers " will be almost constantly at work.

151. A further separation of the more valuable part of the pulverised ore from that which is less so is effected by the process called "jigging," which consists in keeping the whole of the mineral particles suspended in water for a time sufficient to allow of the subsidence of the more ponderous portion. This is done by the agitation of the water in a sieve, in which the broken ore is placed. The more finely pulverised part passes through the interstices of the sieve, and the heavier pieces of larger size occupy the bottom of it, and are sufficiently separated to admit of the light and worthless stone being removed from the top with a piece of wood. The agitation of the water was formerly always produced by hand-labour, and this is still the case very extensively. Boys are commonly employed at this work, which is perhaps more fatiguing and injurious than any other performed on the surface (Evidence, p. 846, 1. 39); and it falls on the young or undersized, as the stooping posture can hardly be maintained except by those whose stature is short. The "jigger" is obliged to bend forwards over the water, across which he generally strides, and to shake the sieve (usually a foot and a half or two feet in diameter) beneath the surface of the water. When the separation of the several portions of the mineral is judged to be effected, the sieve is lifted out of the water, and the refuse is removed. Pains in the back and limbs (Evidence, p. 827, 1. 14), and headache, are represented as the earlier effects of this employment, and more serious consequences, bringing, up blood in particular, are stated to be the not unusual results of its long continuance (Evidence, p. 821. 1. 32). Most of the evil appears to be obviated by a system of relays, which is adopted in many mines.

152. Machinery has, however, superseded, in a large proportion of the more considerable works, the worst parts of this process. Two methods are in use in different mines, by one of which a succession of sieves are kept in motion under water by means of a connection with a water-wheel or steam-engine, and in the other the water itself, in which a number of the sieves are immersed, is kept in a state of agitation by the motion of a body in the centre. Whichever of these contrivances is adopted, the only manual operations required are the supply of the mineral, and the removal of the worthless, portion from the surface. Girls are quite capable of doing this, and are consequently often employed for the purpose.‡

153. The inferior portion of the copper ores, from which the metalliferous particles cannot be extracted by the methods described, is subjected to the stamping-mill, as are almost all the ores of tin. The mineral is reduced by the action of these heavy

* A certain quantity of mineral dust is held in suspension in the air of the sheds in which these processes are performed, and must of course be inhaled by these girls to some extent. Mr. Moyle found that "by placing a box one foot square and the same depth on a beam in the bucking-house of a mine the copper collected was 29½ grains in a week, or equal to 4½ grains daily". Twenty-first Report of the Royal Institution of Cornwall, 1839, p. 57.

† Evidence illustrative of these effects may be found at p. 822, 1. 5; p. 852, 1. 6; p. 853, 1. 57.

‡ Pain in the back is sometimes complained of even under these arrangements (Evidence, p. 853, 61, and p. 854 1. 8).

hammers to a fine powder, which is carried by a stream of water through the perforations in a set of plates of iron surrounding the boxes in which the stamps work. A series of washings of this powder succeeds, the principle of all of which is the carrying off the lighter particles by a current of water of graduated power, and allowing the more ponderous to remain and subside.*

154. The number of these washings, amounting in some tin-mines to about 100, from first to last, causes the employment of a large number of boys and girls. The operations called "trunking", ''buddling" &c., chiefly fall to the lot of the former, together with the clearing out of the "slime" pits, in which the mineral mud is collected, and wheeling this slime to different parts for further dressing; all of which is rather dirty work, and carried on for the most part under the open sky. The more delicate manipulations are chiefly entrusted to females. Among these what is called "framing" in some districts, and "recking" or "racking" in others, employs a great number. In this the girl stands at the side of a very shallow wooden frame, inclined at a moderate angle, and open at the foot; at the head of this, on a ledge more or less raised above it, a portion of the metalliferous mud is extended, and being divided by a light rake, a gentle stream of water is allowed to find its way through it, and to carry it gradually to the frame below. By a skillful direction of the current, the lighter portion is carried off at the bottom, and the heavier is then thrown beneath the frame, by tilting it into a vertical direction upon the pivot on which it hangs, and throwing some water with the shovel upon its surface, to wash off any portions which might adhere to it. This is light work (Evidence, p. 852, 1. 33, 41), although it may be irksome from the constant standing. Some injurious effects have been imputed, in certain mines in which hot water is used, to the rapid transition from a sort of vapour, both to which the girls are especially exposed whilst the frame is raised, to the chill of a wintry air, conjoined perhaps with wet feet (Evidence, p. 842, 1. 42).

155. The tin-ores, after these successive cleanings, are removed to the calcining furnace, and afterwards are subjected to several further washings. In some of these the girls sit within, and at the lower part of a long wooden trough, and direct the gentle current of water with a light brush or feather over the surface of the ore. This is perhaps an occupation involving less muscular exercise than any other department of mining labour. The following examples of mines of different metals and in different districts will serve to illustrate the distribution as to sex and age of the children and young persons among the several branches of surface labour:

*A minute account of the processes commonly adopted in the cleansing of tin-ores is given by Mr. Henwood, in Trans. Geolog. Soc. of Cornwall; vol. iv. p. 84-86, and inserted in Mr. De La Beche's Report, p. 576. As their peculiarities do not involve anything at all important to the boys employed, beyond what is stated in the text, I have not thought it necessary to detail them. Buddling is a coarser kind of framing; trunking consists in flapping a portion of the stanniferous mud from one reservoir called a cover, over a partition, into another called a hutch. This was done formerly, and is so still in some small concerns, by the agitation of the water by single shovels: but it is now generally effected by the raising of a long handle attached to an axis on which a row of blades acting as shovels is fixed, and this axis is in some cases moved by machinery.

TABLE 17.—Showing the several Employments of the Children and Young Persons at the Surface in certain Mines of Copper, Tin, and Lead, in different Districts; distinguishing the Ages and the Sex of the Individuals.

Processes.		Copper Mines.												Tin Mines.								Lead Mine.				Total.				Remarks.
		Western District.				Central District.				Eastern District.				Central District.				Eastern District.				Central District.								
		Levant.				United Mines.				Fowey Consols.				Wheal Vor.				Charlestown Mines.				East Wheal Rose.								
		Ages.				Ages.				Ages.				Ages.				Ages.				Ages.				Ages.				
		Un. 10	to 13	to 15	to 18	Un. 10	to 13	to 15	to 18	Un. 10	to 13	to 15	to 18	Un. 10	to 13	to 15	to 18	Un. 10	to 13	to 15	to 18	Un. 10	to 13	to 15	to 18	Un 10	to 13	to 15	to 18	
Riddling, or Gridding	M.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Riddling and spalling are often performed by the same person, and the return must be taken in that sense.
	F.	..	..	..	..	..	..	..	..	..	..	4	23	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	23	
Picking	M.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
	F.	..	2	3	5	8	32	11	10	..	23	30	7	..	..	..	..	..	..	..	6	6	10	3	2	6	67	47	30	
Spalling	M.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	See remark on riddling.
	F.	..	..	..	..	..	..	..	..	..	2	8	15	..	..	..	..	..	..	..	8	..	..	..	..	..	2	8	23	
Cobbing	M.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Cobbing and bucking, and some other operations, are often united in the returns under the head of dressing or separating ores. This is the case at the Cornubian, where there are under this description—61 males from 10 to 13, 9 from 13 to 15, and 3 from 15 to 18; and 1 female from 10 to 13, 4 from 13 to 15, and 5 from 15 to 18. In East Wheal Rose, in like manner, there are under this designation—of females, 1 from 10 to 13, 1 from 13 to 15, and 7 from 15 to 18.
	F.	..	..	..	3	..	..	..	..	..	1	3	4	..	..	..	..	..	..	..	..	..	..	..	..	..	1	3	7	
Bucking	M.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
	F.	..	..	..	..	..	..	2	29	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	2	32	
Jigging	M.	..	..	..	..	2	17	9	5	2	20	33	43	..	..	..	..	..	..	..	..	..	..	..	..	14	7	2	37	56	55	
	F.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Trunking Slimes	M.	..	..	..	..	..	..	..	..	6	36	6	1	27	75	10	5	..	9	..	..	..	..	..	..	33	11	16	6	
	F.	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	2	4	1	..	2	5	1	..		
Buddling, & serving buddle	M.	..	7	6	..	..	..	..	..	4	29	20	13	1	9	17	8	..	18	19	15	..	..	..	..	5	63	62	36	
	F.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	..	..	..	..	..	..	..	..	..	1	1		
Tying, and tending tyers	M.	..	..	..	..	..	..	..	..	3	17	10	7	..	..	..	..	..	5	1	..	..	3	6	6	3	25	27	13	
	F.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
Framing, or recking	M.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	18	6	..	..	..	..	..	8	18	6	..		
	F.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	17	25	37	..	..	..	..	1	17	25	37		
Rolling, or wheeling barrows.		..	..	..	..	..	..	..	..	..	..	..	..	1	18	25	29	..	..	..	..	4	3	2	1	5	21	27	30	This is also a frequent occupation conjointly with buddling, trunking, &c.

NOTE.—As an example of the division of Labour among the Boys under ground, the Ages and Employment of those in the Levant Mine may be stated.

	Ages.									Total.
	9	10	11	12	13	14	15	16	17	
Tramming	..	..	..	1	1	2	..	..	..	4
Rolling	..	1	2	5	6	8	3	3	2	30
Tending men	1	4	..	3	..	5	2	3	1	19
Breaking ground	..	..	..	..	..	..	1	5	12	18

156. An additional number of hands, of females especially, is employed in many mines at the time of "sampling", that is finally preparing and dividing the ores for sale, which occurs at intervals of a fortnight, a month, or two months (Evidence, p. 833, 1. 28). This division of the ores into separate parcels presents some peculiarities in the labour of the females, and constitutes an animated scene in the larger mines (Evidence, p. 831, 1. 40). The general heap, containing, perhaps, some hundred tons, is surrounded by a number of pairs of girls with hand-harrows, which are filled from the edge of the heap by a party stationed round, in a regular succession, dictated by a girl appointed to the post. The barrows are then carried off rapidly and emptied as the germs of a certain number of distinct parcels; and to each of these a barrowful is added in regular order, so that the total number in every one is the same. This business is attended with some bustle and hilarity. Those who fill the barrows exchange places after a time with those who carry them. The latter have, during their turn, by far the harder work. Indeed, carrying barrows (usually about 1½ cwt.), whether on this occasion or in the ordinary course of work, when it is part of the business of the girls who break the ores, and of the boys associated with the "pickers", and those employed at the "slime" pits, is hard work, and is often complained of as causing pain in various parts, and not unfrequently occasioning more permanent injury from sudden strains or falls (Evidence, p. 826, 1. 45; p. 831, 1. 28; p. 845, 1. 14, 50; p. 846, 1. 60).

157. Turning to those employed underground, we find a great difference in different mines in the number engaged at an early age. It may be well to remark, that females never work under-ground in any of the mines of the West of England, and that no record exists of their having ever done so. Working air-machines, where they are used, is perhaps the first work at which boys are employed. The ordinary machine is a sort of hydraulic bellows, consisting of two boxes or cisterns, one moving inverted within the other, which is filled with water. The moving power is applied at the end of a. lever, very much like the handle of a common pump, and by the raising of the inner cistern, the impure air is drawn in, to be expelled from its upper part when it is depressed, by a proper arrangement of valves and pipes. The work of the boy is not very hard in itself; but statements will be found in the Evidence (p. 853, 1. 11, 22, 46; p. 854, 1. 38), of the occasional extension of the impurity of the air to the place in which the machine stands, so that he is sometimes affected by it, suffering chiefly in the head and stomach.

158. Another employment of the younger boys underground, is that designated as "hauling tackle", which implies working a windlass for the raising (in an iron-bucket) of the ground, in proportion as it is excavated in the sinking of any pit, but chiefly of the communications or winzes between the levels. A good deal of labour is involved in this occupation, but, the air is not usually very impure in the upper level in which the windlass is placed (Evidence p. 825, 1. 38).

159. But the work which employs the greater part of the younger boys under ground is what is termed by them "rulling", that is rolling or wheeling barrows, loaded with the ground removed from the place where it has been excavated to that from which it is to be taken to the surface. This occupation is always laborious (Evidence. p. 825, 1. 6; p. 834, 1. 4); but the degree in which it is so varies with the distance traversed. which may be 10 or 100 fathoms, with the roughness and dryness of the ground, the temperature and purity of the air, as well as with the weight of the barrow, which, where older boys are associated at this work with younger ones, is often filled by the former to an extent more adapted to their own powers than to those of their comrades (Evidence, p. 831, 1. 16).

160. Exposure to a very impure air is generally limited, in this employment, to the time occupied in filling the barrows at the place where the men are working; but its effects are often distinctly marked, as described in the Evidence (p. 830, 1. 59, 64), The boys are often allowed to leave, at the end of six hours' barrow-work, where it is continuous, that period being considered equivalent to eight hours of other labour: if the stuff has been cleared away, they are not even detained so long. The period at which iron rails are laid down varies in different, cases, in accordance chiefly with the apparent occasion for the more permanent use of a particular line of communication. Whenever it is done, tram-waggons are substituted for wheelbarrows, and, most commonly, men for boys (Evidence, p.825, 1. 13). The ore and rubbish are raised to the surface in a large iron bucket, called the "kibble"; a few boys are employed in assisting the men to fill it, which is hard work (Evidence, p.823, 1. 60), but performed for the most part where there is good ventilation,

161. The work in which boys are in the first instance engaged, altogether in the same locality with the adult miner, is that of holding and turning "the borer" whilst it is beaten, in the making the holes in which the gunpowder is lodged for blasting. The exposure to impure air is the chief evil connected with this employment, but it is an evil of the greatest magnitude, and will come again under consideration hereafter. A light description of work connected with blasting, in which, conjointly with rendering any little assistance needed by the miners, very young boys are sometimes employed, is the pulverising and otherwise preparing the clay used for "tamping"; plugging the holes before the charge is fired (Evidence, p. 847, 1. 41).

162. Taking a turn at "beating the borer" comes next in the succession of employment. This work occasions, perhaps, more direct injury than any other, from the general severity of the labour, and from the sudden strains and overreaching, which can only be avoided by a greater exercise of caution than is likely to be permanently maintained. The miners themselves frequently date the commencement of ill health from some hurt received whilst engaged in this work (Evidence, p. 827, 1. 23). The mischief arising from the labour itself is greatly aggravated by the noxious qualities of the air in which it is carried on, being often necessarily that of the extremity of the cul-de-sac in which the most advanced excavations are in progress.

163. At this stage of their progress, boys are commonly associated in partnership with the men, or as it is termed, "are taken into concern"; being usually reckoned in the first place as "part of a man", that is, as holding "a half", or three-quarters of the share allotted to each man. To this system no inconsiderable portion of the evil inflicted by mining labour, both on the adult and on the boy, may be traced. To be "taken into concern" is a sort of promotion for the boy, and this is an inducement, concurring with the more urgent one of pecuniary advantage, leading the father to make his son a co-partner with himself at the earliest opportunity.* But the other partners will not be satisfied unless work is done by every member of the firm equivalent to the proportion of profit he is to receive; the father and the son both feel this, and the young energies of the one are willingly tasked to the utmost, whilst the other makes good by extra toil what is still deficient in the amount of work executed. The boy under these circumstances is likewise equally exposed with the men to the most impure air and to risk of accident.

164. In the consideration of the nature of the employment of under-ground miners of every age, the mode of *descent and ascent* must be included as a constituent item. The labour of climbing ladders is always intrinsically great (Evidence, p. 834, 1. 15), and the distance traversed even by the youngest boy is, with very few exceptions, several hundred feet, whilst in many instances it is from one to two thousand. Some more extended remarks on this subject, in its general relation to all classes of miners, will be found in the introductory part of this Report (36, &c.).† It will be sufficient to observe here, that the cheerfulness with which the boys climb the ladders is not to be taken as proof that they are not injured by the exertion. The inclination to muscular activity is so strong in early life, that it is in this, as in more entirely voluntary feats of strength or agility, ex-pended lavishly. Rest and sleep seem to restore the powers completely and unless some distinct injury occurs, it is left to the feeble and ill-developed frame of the youth — to the slow inroads of disease of the heart and lungs, or to premature decrepitude — to testify what have been the consequences of the early exhaustion of vital power, and of the fixing of the bones and muscles in a rigid position at a period when nature intended them to be still plastic (Evidence, p. 835, 1. 5). But the injurious effects are very often alike distinctly and rapidly produced. Examples of their nature may be found in the Evidence (p. 840, 1. 20; p. 854, 1. 40).

V. STATE OF THE PLACE OF WORK

165. The mines of the West of England are situated in places for the most part remote, and always separate, from towns, and the only permanent dwellers within their precincts are the few individuals having charge of the counting-houses. Consequently no contamination of air such as results from the assemblage of human habitations can arise. On the surface, the evils which do exist are connected either

* A boy at Fowey Consols states that he was taken into concern by his father before he was 12 years old (Evidence, p. 853, 1. 5). Another about the same age (p. 854, 1. 35).

† The boys sometimes bring up tools (Evidence, p. 854, 1. 39), but this is seldom the case.

with a defective shelter from the elements, or with impregnations or effluvia occurring in the processes employed.

166. A large proportion of the mines are located in very exposed situations; on the bleak sides of hills, many hundred feet above the sea, and often open to the stormy north-west wind as it comes fresh from the ocean. The climate is a rainy and cloudy one, and high winds are very prevalent. Where the arrangements are the best, the shelter provided, which consists of sheds chiefly formed by planks, is barely sufficient (Evidence, p. 846, 1. 6) to protect those within. The buildings which are the most perfectly walled in are usually occupied by those engaged in "cobbing" and "bucking"; for the "jiggers" the sheds are open at the front, and of course less effectually defensive, whilst the "pickers" have only a roof overhead, and are therefore nearly open to the wind, which often brings the rain along with it. (Some evidence on these particulars may be seen at p. 845, 1. 15.) Those employed in "framing" or "recking" are generally furnished with sheds open in front. This is a description of the best appointed accommodation. In many mines, those especially which are of small or recent working, the provision of shelter is very inferior, and quite inadequate to the effecting what should be its design.

167. Much of the work which succeeds the stamping of the ore, such as buddling, trunking, wheeling slimes, &c., is performed in the open air; and this is likewise the case with the first separation and breaking of the stuff raised, by riddling, spalling &c. In these occupations, all that can be done to obviate the inclemencies of the sky, is to run under a shed when the rain is violent, and to the "dry" or the smith's shop for warmth when the cold is severe; indulgences usually permitted during a short time. Those stamping-mills which are at a distance from the mines to which they belong, or are altogether distinct concerns, are generally provided with very little shelter indeed, and being usually placed in deep valleys (where water-power can be most advantageously employed), they are likewise within reach of any malaria which may be generated there. These observations apply also to the greater part of stream-works.

168. The impregnation of the water with mineral substances, commonly called "mundic-water" by the miners, causes sometimes a sort of poisoning, where there is any abrasion of skin, of which instances are given in the Evidence (p. 822, 1. 65; p. 827, 1. 50); and at times the vapour arising from such water, when it is warm, is said to produce injurious effects (Evidence, p. 835, 1. 67).

169. With this slight exception, no effluvia of injurious tendency can be said to be diffused in the air of the places in which army of the surface operations in these mines are carried on. The arsenical fumes emitted from the calcining furnace, respecting the mischievous effects of which some evidence will be found (at p. 841, 1. 28), are now carefully collected in flues of great length, in which the poison is precipitated. The furnaces employ very few hands, and these are chiefly adults; neither is their exposure to heat or effluvia at all materially detrimental. Mention has already been made of the mischief occasioned by the dust produced in the crushing-mill. It is rare that more than one or two boys are engaged in this work.

170. It appears then that the surface-work in these mines is, with scarcely an exception, carried on under a condition the opposite of defective ventilation; and it cannot reasonably be doubted that the constant exposure to a cool and rapidly-renewed air lessens very greatly the susceptibility of the frame to affections more directly produced by cold and wet, whilst it enables the system to support, without exhaustion, labour of much longer continuance than can be endured where the supply of oxygen is deficient, and the temperature high.

171. The conditions of the places of work under ground, or what is properly called the mine, are described in a former part of this Report, as they affect the persons employed at every age. This general statement need not be repeated here, but a few remarks may be made on what is peculiar to the boys. The influence of the solar rays, as constituting one of the modifiers of the nutrition of the body, is proportionally most important at the periods of life when that nutrition is most active. The same principle applies to the supply of the vital constituent: of the air, only with greater force, as air is more indispensible to the completion of nutrition than light. The more directly poisonous gases and irritant particles diffused through the air are really more pernicious to the immature than to the adult, though they are apparently less so. The irritability of the nervous system of the young animal takes alarm on the first impression of hurtful agents, and the freedom of the secreting functions generally causes their complete elimination at the expense

only of some temporarily increased action. But besides that this process, after being several times repeated, - each time with less facility than before, - is exchanged at last for inflammation or hemorrhage, the whole development of the body is arrested, whilst organs, whose healthy actions are essential to its nourishment, are occupied in resisting agents threatening direct injury to their structure. The result is that, when the usual age of maturity is attained at all, the maturity of a healthy and well-balanced constitution is rarely attained (Evidence, p. 831, 1. 56; p. 834, 1. 11, 66 p. 835, 1. 16). The mischief will be in this respect nearly proportional to the earliness of employment: and that it is so, the evidence collected for the present inquiry is abundantly sufficient to prove. The depositions at p. 829, 1. 53, 66; p. 830, 1. 6; p. 841, 1. 69; p. 843, 1. 40; p. 848, 1. 31; p. 852, 1. 49; p. 853, 1. 7, may be adduced as some of the more pointed statements of facts, which are illustrated by a very large proportion of the examinations.

172. To put out of sight the frequent production of well-marked disease, the pallid complexion indicates clearly enough that the oxygenation of the blood is imperfect, and that the nutritive processes are interfered with, which is further proved on the large scale by the inferior development of the men as a body to that of the women (Evidence, p. 830, 1. 67).

173. Notice was taken, under the preceding head, of some of the evils resulting front the taking into "concern" (partnership) of boys at an early age. The state of the place of work, no less than the nature of the employment, is rendered more unfavourable by this premature association in the labour of the men. The spot in which they are working is that in which all the causes of impurity in the air are most concentrated in their action, and least checked by ventilation; being that in which the space is most narrow; where men and candles are consuming the most oxygen, and giving out the greatest quantity a deleterious matter; where the powder-smoke and the gases generated in blasting are the least diluted; and, lastly, it is the most remote from any shaft or winze, and consequently from any current of air. The levels are now much more spacious than they formerly were (Evidence, p. 851, 1. 60), and no greater improvement than this in the state of the place of work could have been introduced; but, supposing that they were in all cases six or seven feet high by four or five wide, which is very far from being the case, still the tributer, in following the lode, will often avoid the labour of excavation at the cost of the greatest inconvenience from the narrowness of the passage in which he works; and at times will pursue his labour lying on his side in so contracted a space that, if he drops his tool, he is obliged to retreat to some distance, in order that he may turn himself round so as to recover it. In such places, the boy who is "in concern" must lend a hand; and indeed his smaller size and greater suppleness will often lead to his being employed in preference, under analogous circumstances, where his strength is sufficient for the duty required. It is, however, generally considered that the tutworkman is even more exposed than the tributer to poor air, being employed in driving the levels, the extremities of which can have no lateral communication for the passage of air, and the boy who is in partnership with him must incur the same risk of suffering from the poisonous agent.

174. The importance of lessening the intervals of the staves of the ladders has been before spoken of. In this connexion it is only necessary to add that the shorter interval is the more valuable to the *boy*, in proportion to the shortness of his stature compared with that of the adult. Boys have an inclination to compete with their comrades in the agility and speed of their climbing; such competition is every way to be discouraged; but certainly a portion of the resulting mischief will be prevented by the reduction of the distance through which the body is lifted at each step (Evidence, p. 821, 1. 5; p. 824, 1. 45).

V1. ACCIDENTS.

175. The subject of the accidents befalling miners generally has been treated in a former part of this Report. It is only necessary to consider here what is more special to the case of children and young persons. The returns to the queries do not always state whether the sufferers were adults or not, it is therefore possible that some of those among the men were under 18 years of age. The number of boys returned as having lost their lives by accidents is only *two,* both caused by falling under ground.

176. The surface operations in these mines are very free from occasions of accident; and such as do occur are for the most part slight, arising from strains or

falls, or casual blows with the tools. The machinery used for “jigging”, the only department in which young people are employed in any number, is not at all of a dangerous sort. Very few boys are employed about the steam-engines, but injuries have arisen to some of them. In the St. Agnes District Register is entered the case of an engineer of the age of 15, whose death is recorded as being accidentally caused in Wheal Kitty, and at Evidence, p. 835, 1. 35, will be found another instance of a less serious character. The *crushing-mill* has also occasioned some fatal accidents, though likewise employing very few boys. These latter cases may be said to have been entirely attributable to the heedlessness natural to boys; the nature and position of the machinery being such as to involve no risk whatever where the most common caution is used. This juvenile imprudence is still more evident in the case of an accident which occurred at Wheal Vor, where one boy was killed and another seriously injured by the falling on them of a heap of “slime" (mud from the stamps) which they were imployed [sic] in wheeling to another part, and which they undermined (with the view probably of facilitating their work) in so incautious a way as to bring it down on their own heads (Evidence p. 841, 1. 26).

177. Underground, the boys (especially before they are taken “into concern") are not much exposed to injury from blasting; one of the causes of accidents among adults. They are proportionally more exposed to falling down shafts or winzes, both in consequence of boyish carelessness, and from their passing more frequently in the neighbourhood of these pits in their usual employment of wheeling barrows (Evidence, p. 826, 1. 11; p. 834, 1. 59). In many cases of such accidents, the candle has in all probability been extinguished (Evidence, p. 853, 1.35). In climbing the ladders, the comparative deficiency of muscular power, and the liability to its sudden failure, belonging to their early age, have doubtless occasioned the “falling away” of boys where men would have been safe (Evidence, p. 854, 1.55). Many accidents have happened to miners from the sudden loss of self-possession occasioned either by the apprehension of danger or by the shock produced by the witnessing some awful catastrophe. It can hardly be doubted that boys under similar circumstances would be more vividly and dangerously impressed. Some individuals have, by such occurrences, been deterred from following the occupation of under-ground mining (Evidence, p.829, 1. 41). In other cases, the fright is succeeded by severe, and not seldom fatal, disease of the brain, which is described by Mr. Lanyon as happening chiefly to young subjects.*

178. A great number of accidents, though for the most part slight, occur in almost every mine. Reference must be again made to the remarks in a former page, concerning the whole body of miners, for precise information on this point. No record exists by which the proportion can be ascertained in which such accidents befal [sic] children and young persons.

179. It is, however, almost superfluous to adduce specific proof of what may be directly inferred from the nature of the human constitution, that where carelessness and exhaustion are the two chief causes of accidents, they must happen in larger proportion, other circumstances being the same, where there is most carelessness and most weakness; in other terms, more frequently among boys than among men.

VII. HOLIDAYS.

180. As a general rule, no holidays are allowed in the mines in the West of England but Christmas Day and Good Friday (Evidence, p. 832, 1. 47). In some few cases the day of the parish feast is added to these (Evidence, p. 850, 1. 27); but in by far the greater number the attendance at this is so contrived as not to occasion any loss of time at the mine (Evidence, p. 841, 1. 33). In one mine (Levant) an old custom of having six holidays in the year still obtains (Evidence, p. 848, 1. 28). A few hours may be given on some other festivals, as stated (Evidence, p. 845, 1. 52) with respect to the Consuls.

181. On Saturdays, work is closed in many mines about an hour earlier than usual; and generally, about once a-month (on pay and setting days), little, if any, work is done after dinner. The setting of piece-work (tasks) causes on the whole a more important abatement of the duration of labour than the more professed holidays; but this does not apply to any great extent to those mines, commonly the largest, in which the work is much pushed.

182. The most material suspension of the working of the children and young

* Sixth Annual Report of the Cornwall Polytechnic Society, 1838, p. 45.

persons at the mines arises either from their voluntary or involuntary irregularity of attendance. In many cases there is not constant employment to be obtained, in many it is left very much to the choice of the labourer to come to the mine or not in others, again, illness or some more urgent call elsewhere, interrupts the regularity of attendance, and substitutes are sometimes provided when business or pleasure causes the absence of the young people from the mine, and it is yet necessary for them to make good their place or to lose it. These particulars have respect to those employed at surface; under ground substitutes are almost always provided. The average attendance at the mine, and number of days of work in the year, will be best understood from the following tabularised statements from mines in different districts. The several rates of wages correspond pretty accurately with the ages of those employed. The individuals were taken quite indiscriminately from among those who received the specified rates of wages and who were regularly employed. (See Tables 18 and 19, p. 785.)

I am indebted to the agents at Trethellan for the former table, and to Captain Davis, R.M., the manager of the Fowey Consols, for the latter. Mr. Francis, the principal agent at the United Mines, has kindly furnished me with the following analogous statement respecting the girls and boys employed in that mine:

The gettings of six girls of the largest class for the last twelve months was £9 6s each, or 15s 6d per month; and their wages, if constantly employed, would have been 18s 6d per month each.

The gettings of six girls of the smaller class, for the same time, was £4 15s each, or 7s 11d per month; and their wages, if constantly employed, would have been 8s 6d per month each.

The gettings of six boys employed at the surface in preparing the ores for the same time was £6 5s each or 10s 5d per month; and their wages, if constantly employed, would have been 12s per month each.

183. The air of the children and young persons employed at the surface is cheerful and alert, and a disposition to make the most of the intervals of labour in sports of different kinds is generally evinced. Even when labour is excessively, prolonged, it is rare to perceive any external sign that the flow of youthful spirits has been dried up.

184. The boys who work under ground have usually more time at their disposal, but it is often occupied in giving assistance in whatever is to be done at home; often in carrying water, or helping to cultivate the garden or the little farm. It is not so easy to judge of their disposition to engage in sports as of that, of the surface boys, as they are not often collected together in numbers. The risks, increased demand for the exercise of intelligence, and perhaps the higher wages connected with under ground mining, appear to give them more thoughtfulness of expression and demeanour, and contribute, with the unhealthiness of their occupation, to make them look older than they really are. But in this there is no approach to depression of spirits, and there is no reason to doubt that they join very cheerfully in play suitable to their years when occasion offers.

VIII. HIRING AND WAGES

185. The first introduction of a child to mining labour usually consists in its being brought by the parent with a request for work; or, if the father is employed, he is probably allowed to put a child into any opening which may occur. The first wages are generally 2d or 3d a day. Afterwards there is not usually any intervention of the parents in the agreements or in the receipt of wages for their children. In different mines, and with respect to different work in the same mines, there is much variety as to the performance of work on the owners' account, or by tribute contract; but the persons employed are paid in all cases virtually by the owners: the rate of wages is also nearly fixed, and the fluctuations which do arise are not dependent on any special arrangement between the contractor and the labourer. A gradual advance of wages, according to the practice of the mine or district, takes effect as age and skill increase. Much is also done by piece-work, and the payment in that case is generally calculated on such a scale as to give the daily wages usual for persons of the same age and ability. In the ordinary course of business the labourer is not allowed to earn more than a certain sum in the day, and is expected to employ the whole day in earning that sum (Evidence p. 846, l. 18). On particular occasions, however, and more in some mines than in others, a certain amount or piece-work is allowed to be completed as expeditiously as is compatible with its being done well, and the labourers are then free to go. In some cases they

TABLE 18.—A Return of the Gettings of the Girls employed at Trethellan Mine, as promiscuously taken, from March 1840 to March 1841.

Names.	Per day.	1840. March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	1841. January.	February.	Average.
	s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Mary Tippet	0 10	1 1 8	1 0 5	1 1 8	1 0 5	1 2 6	1 0 10	1 1 8	1 0 10	1 0 10	0 18 4	0 14 2	0 19 2	1 0 2
Sally Bartle	0 9	0 15 9	0 16 10	0 18 0	0 16 1	0 16 1	0 10 6	0 17 6	0 19 9	0 19 0	0 16 6	0 18 0	0 16 6	0 16 8
Jane Thomas	0 9	0 17 3	0 19 4	0 18 4	0 15 9	0 19 10	0 15 0	0 19 4	1 0 1	0 18 6	0 18 0	0 18 6	0 15 9	0 17 11
Elizabeth Uren	0 9	0 18 4	0 18 9	0 17 7	0 19 10	0 18 9	0 18 7	1 0 1	0 18 3	0 18 0	0 18 9	0 15 0	0 19 11	0 18 6
Ann Thomas	0 8	0 16 8	0 15 8	0 16 8	0 16 0	0 15 0	0 16 0	0 16 2	0 15 8	0 16 2	0 14 8	0 15 4	0 15 4	0 15 9
Tam. Knuckey	0 8	0 9 4	0 13 10	0 17 4	0 16 0	0 16 0	0 16 0	0 15 10	0 15 0	0 15 4	0 14 4	0 15 4	0 7 4	0 14 4
Ann Bawden	0 7	0 14 10	0 11 6	0 14 0	0 14 3	0 12 10	0 13 1	0 14 10	0 15 2	0 13 8	0 12 10	0 14 7	0 12 10	0 13 8
Ann Dowa	0 7	0 15 2	0 13 9	0 14 7	0 13 1	0 13 8	0 14 3	0 14 6	0 14 10	0 15 6	0 12 10	0 15 2	0 12 8	0 14 2
Ann Knuckey	0 6	0 9 9	0 6 9	0 7 3	0 5 6	0 7 9	0 6 0	0 4 0	0 4 0	0 10 9	0 7 6	0 8 0	0 11 3	0 7 4
Mary Nicholls	0 6	0 10 0	0 10 0	0 11 0	0 10 9	0 11 6	0 12 0	0 10 9	0 12 6	0 12 0	0 11 0	0 11 3	0 9 9	0 11 0
Elizabeth Tratten	0 5	0 9 7	0 9 2	0 6 8	0 9 2	0 9 7	0 10 0	0 8 6	0 10 0	0 7 9	0 8 2	0 10 0	0 7 8	0 8 10
Elizabeth Moyle	0 5	0 7 3	0 10 0	0 8 1	0 8 9	0 9 2	0 9 4	0 9 4	0 8 11	0 9 4	0 10 0	0 8 4	0 9 4	0 9 0
Jane Grig	0 4	0 7 10	0 6 6	0 9 2	0 6 10	0 7 1	0 9 2	0 7 8	0 7 2	0 6 10	0 5 4	0 8 4	0 5 10	0 7 4
Mary Kuckey	0 4	0 7 0	0 6 4	0 7 4	0 7 2	0 6 8	0 7 4	0 8 2	0 7 6	0 8 0	0 6 8	0 7 0	0 4 8	0 7 0

TABLE 19.—A Return of the under-mentioned Girls' and Boys' Wages, employed Dressing Ores in the Fowey Consols Mines, taken promiscuously from the Cost Book, for one Year to end of March 1841.

Names.	Daily Wages.	Monthly Earnings.												Average per Month.
		April.	May.	June.	July.	August.	September.	October.	November.	December.	January.	February.	March.	
	s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Mary Manuell	0 11	1 3 7	0 18 11	0 17 8	1 0 9	0 18 5	1 1 3	0 19 11	1 1 4	1 3 1	1 0 0	1 1 4	0 19 5	1 0 6
Sarah Jenkin	0 11	0 15 10	1 1 4	0 19 6	0 19 1	0 15 10	1 2 4	0 9 4	0 9 5	1 0 0	0 17 2	0 19 1	0 19 6	0 17 4
Ann Paynter	0 11	0 19 4	0 18 6	0 15 2	1 3 1	0 18 6	1 2 8	0 17 6	1 1 4	1 1 8	0 17 8	0 19 5	0 19 4	0 19 6
Catherine Cotty	0 11	1 3 0	1 3 1	1 1 0	1 5 11	1 1 4	1 3 0	1 3 11	1 2 9	1 5 10	1 1 11	1 3 1	1 1 4	1 3 0
Mary A. Martin	0 9	0 13 8	0 10 11	0 13 9	0 11 7	0 15 11	0 8 10	0 12 5	0 12 0	0 14 2	0 6 4	0 14 4	0 12 0	0 12 2
Jane Hosking	0 0	0 10 6	0 14 5	0 11 10	0 6 6	0 9 0	0 12 5	0 15 0	0 13 9	0 14 8	0 13 5	0 13 2	0 11 2	0 12 2
Elizabeth Stevens, jun.	0 9 and 10	0 16 10	0 11 9	0 13 2	0 18 0	0 12 1	0 12 6	0 16 2	0 12 2	0 15 2	0 16 6	0 14 11	0 15 0	0 14 6
Jane Bartle	0 4	0 3 0	0 2 8	0 4 2	0 4 1	0 3 4	0 8 2	0 7 9	0 7 10	0 6 1	0 3 4	0 6 2	0 2 8	0 4 11
Jane Hooper	0 4 and 5	0 6 7	0 2 4	0 4 0	0 3 6	0 4 8	0 4 8	0 7 0	0 6 0	0 11 1	0 7 2	0 6 5	0 6 0	0 5 9
Catherine Martin	0 5	0 5 6	0 5 7	0 9 4	0 9 6	0 5 4	0 5 6	0 6 8	0 6 1	0 7 4	0 7 11	0 8 9	0 4 0	0 6 9
Nicholas Carpenter	0 11	1 0 8	1 0 8	0 19 4	1 4 10	0 18 2	1 2 9	1 1 3	1 3 5	1 5 0	1 0 6	1 0 1	0 0 0	0 19 9
Richard Mewton	0 11	1 0 4	0 18 10	0 15 11	1 2 4	0 13 5	1 1 7	1 1 6	0 19 11	0 16 2	0 19 11	0 9 11	0 19 1	0 18 3
Silas Trengove	0 9	0 12 5	0 9 7	0 4 3	0 12 6	0 8 10	0 10 6	0 11 1	0 0 9	0 7 10	0 11 6	0 12 2	0 11 2	0 9 5
Richard Odgers	0 9	0 14 5	0 12 8	0 3 9	0 2 11	0 10 6	0 15 2	0 15 2	0 15 2	0 15 8	0 15 7	0 17 1	0 13 8	0 12 8
Joseph Eastlake	0 4	0 7 3	0 7 6	0 7 7	0 0 11	0 3 4	0 3 2	0 4 0	0 6 9	0 5 5	0 4 10	0 5 7	0 4 8	0 5 1
William Trathan	0 0	0 5 8	0 5 5	0 5 2	0 6 0	0 6 7	0 7 2	0 6 4	0 5 0	0 3 10	0 5 1	0 4 0	0 3 4	0 5 3
H. Carpenter, Jigging-machine	1 2	1 9 0	1 7 3	1 4 4	1 11 11	1 6 8	1 10 2	1 4 4	1 4 4	1 13 5	1 6 1	1 3 11	1 7 5	1 7 4
Joseph Giddy	1 1	1 4 9	1 2 2	0 18 0	1 6 8	1 1 11	1 10 9	1 6 0	0 19 9	1 10 9	1 4 6	1 5 3	0 19 4	1 4 2

are afterwards at liberty to undertake fresh piece-work, and thus to earn higher wages.

186. The surface labourers are paid monthly, at the counting-house of the mine (Evidence, p. 833, 1. 23). This is done with very great regularity at almost all the mines. A party of five or six boys or girls is generally represented by one, who receives the money for all, and distribution is afterwards made. Much care is now generally taken to pay them with such a proportion of silver as may enable them to make the division without having recourse to the shop or public-house for change (Evidence, p.830, 1. 49; p. 841, 1. 36; p. 845, 1. 7). This system is not, however, yet carried so far as it ought to be (Evidence, p. 848, 1. 50), and in some instances is very little attended to. When the surface labourers are employed by the tributers, the wages are still for the most part paid by the owners; or, if not, care is taken that they are regularly paid (Evidence, p. 850, 1. 30).

187. The wages are paid over to the parents by their children. Now and then, in consequence a the amount not being so great as was expected, the former will inquire at the mine how much was received by the latter (Evidence, p. 848,1. 43); but usually the children take to their homes the full amount which has been paid to them. The payment for the extra work, spoken of above, is in many districts the perquisite of the children, and is kept by them as pocket-money, when not absolutely needed by the parents (Evidence, p. 886, 1. 16).

188. The following table will show the highest and lowest wages given in different mines to children and young persons employed at the surface, together with the corresponding ages. (See Table 20, p. 787.) The tables (18 and 19), given at p. 785, and exhibiting the payments actually paid, will be illustrative of the present subject likewise.

189. The boys underground are employed for the most part by the men (Evidence, p. 821, 1. 38 p. 833, 1.26), and are usually engaged for the same term as they; but in particular situations, when their services are only occasionally required, they are passed from one party to another (Evidence, p. 833, 1. 64), and at times exchange under-ground for surface work (Evidence, p. 853, 1. 3). In some departments, as in the sump and pit work, a few boys are employed by the owners. In all cases the arrangement is made between the boys and the employers, without the intervention off any third party; and no conditions at all oppressive to the former are annexed. Those employed by the owners are paid in the same manner as the surface-boys, once a month; and such is usually, and should always be, the case with regard to those employed by the men. Some irregularity of payment does, however, not unfrequently arise, generally from the poverty of the men, and the interference of the managers is then required.

190. The men being paid once in two months only, a certain advance is made under the name of "subsist" (subsistence-money), which is intended in the first place to enable them to pay the boys (Evidence, p. 833, 1. 27). If this is not done, the manager generally pays them himself, and deducts the amount from what is due to the men, besides in many cases depriving them of the whole or part of their "subsist" for some time. This guardianship of the rights of the boys is even taken up by the managers of other mines, when a miner has left, a mine, and gone to another without paying the wages of the boys employed by him at the first. Evidence (p. 821, 1. 25; p.841, 1. 41) will illustrate these points. Where the boys under ground work overtime (double core) it is usual for them to be allowed the disposal of these extra earnings, as in the case of those at the surface (Evidence, p. 832, 1. 13). The wages under ground are much higher than at surface for boys of the same age. The scale may be seen in different mines in the table (20) in the following page. When boys have been "taken into concern", they share in the risks and profits of the senior members of the firm.

191. The money received is in all these cases handed over to the parent by the younger boys, and they generally continue to do so beyond the age of eighteen. In some cases, where the boy's earnings are large, he pays a portion of them only in return for his board and lodging (Evidence, p. 848, 1. 47); and in a few instances the paternal roof is quitted altogether (Evidence, p. 829, 1. 30; p. 832, 1. 68).

192. It may be confidently stated, that no hiring of children or young persons takes place in the mines of the West of England to which they are not voluntary parties. The advance of money to parents on the credit of the future labour of their children is totally unknown. No system of apprenticeship is practised anywhere, and the obligation of giving a month's notice of the intention to quit a mine

TABLE 20.—Showing the Rates of Wages in the Mines of different Metals in the several Districts, distinguishing the Sexes, the extreme Ages, and the Under-ground from the Surface Labourers.

Names of Mines.	Under Ground.						Surface.										—
	No. of Boys employed.	Ages.		Wages.			No. of Boys employed.	Ages.		Wages.			No. of Girls employed.	Ages.		Wages.		
		Oldest.	Youngest.	Highest.	Lowest.			Oldest.	Youngest.	Highest.	Lowest.			Oldest.	Youngest.	Highest.	Lowest.	
		Yrs. Mths.	Yrs. Mths	s. d.	s. d.			Yrs. Mths.	Yrs. Mths.	s. d.	s. d.			Yrs. Mths.	Yrs. Mths.	s. d.	s. d.	
Boscaswell Downs	16	16 2	11 0	6 3	3 0		19	16 2	8 6	6 0	1 9		..	..	..	..	..	
Levant	70	17 10	9 1	13 6	2 6		33	17 10	10 0	8 9	2 6		25	17 8	12 4	6 0	2 6	Western District.
St. Ives Consols	15	17 11	12 5	7 6	7 3		45	17 0	5 0	7 6	1 3		9	17 3	13 1	4 6	2 6	
Godolphin	38	17 6	12 6	10 0	3 0		59	17 6	9 0	6 3	1 0		24	17 0	10 0	4 0	1 6	Central District, S.W.
British Silver, Lead, &c.	8	17 6	13 6	7 6	5 0		26	17 6	9 0	7 6	1 3		16	17 6	9 0	3 6	1 6	
East Wheal Crofty	33	17 6	12 6	10 0	3 6		56	15 0	8 0	9 6	1 3		43	17 4	8 0	4 0	2 0	
United Mines	113	17 6	11 6	12 0	2 0		89	17 4	10 1	5 5	1 3		69	17 11	9 1	4 3	1 9	Central District, Middle.
Wheal Jewell	32	17 2	11 2	8 0	3 6		17	17 1	9 2	4 3	1 3		19	17 1	9 11	4 3	1 6	
Hallenbeagle	62	15 1	7 5	7 0	1 6		17	16 8	9 9	3 9	1 6		55	17 9	9 11	4 6	1 6	
Polberou Consols	16	17 6	10 6	12 6	2 4½		81	17 0	8 0	6 9	0 9		35	17 0	10 0	4 0	1 0	Central District, N.E.
Wheal Budnick	14	17 6	13 6	15 0	3 9		40	17 8	9 3	9 0	0 9		32	17 9	10 7	4 0	0 9	
Cornubian	7	17 6	12 6	10 0	3 9		16	16 0	11 0	5 0	2 3		10	16 6	11 0	4 0	2 6	Lead Mine, ditto.
Polgooth	12	17 6	11 6	9 6	2 6		50	17 0	9 10	4 6	1 0		7	16 11	14 1	3 6	1 9	Eastern District.
Wheal Friendship, Devon	62	17 10	9 5	10 6	2 6		87	17 7	8 0	10 0	1 0		55	17 9	9 6	4 6	1 6	Copper.
Wheal Betsey, Devon	12	17 6	12 6	9 0	5 0		44	16 10	7 0	7 6	1 0		9	16 0	9 0	4 0	1 6	Lead.

is the most stringent condition by which the labourer is in any instance bound (Evidence, 841, 1. 44). It may be further remarked, that a great deal of protective influence is, generally speaking, exercised by the managers of mines, with respect to the regularity and the convenient mode of payment of the wages of the young people.

193. Evidence may be seen (p. 821, 1. 25; p. 830, 1. 28; p. 847, 1. 49; p. 849, 1. 52) of the rarity of disagreements between employers and the younger class of labourers, with regard to hiring or wages. The answers to the following query, submitted to the same magistrates mentioned when treating of the adult miners, are equally satisfactory. The question asked was this:

Have complaints been made before you on the part of the children or young persons employed in mines or other large works, arising out of the non-fulfilment of agreements by their employers, whether masters or workmen?

The answers are as follows:

From the Western District
Such complaints have been made, but not more frequently, in proportion to the numbers employed, than by those engaged in other labour.

From the Central District
(a) South Western Division:
An instance rarely occurs where complaints have arisen by either of the parties, or for the causes named in the query; for the rules in the large mines are generally good, and acted on with judgment and vigour.

(b) Camborne Division:
For many years I was the only magistrate in this populous district. The complaints of children or young persons working in mines have been rare and of a trifling nature, being generally for non-payment of wages by the *common miner* employing them, which have always been settled with perfect ease and satisfaction by the magistrates in petty sessions.

(c) Redruth Division:
Complaints have occasionally been brought to me on the part of children employed in the mines for non-payment of wages due; and I have granted summonses, which have generally been sufficient. It. is a commonly understood arrangement in the different mines, in such cases, to stop the amount due out of the employers' gettings, and so to pay the labourers.

Eastern District
(*a*) St. Austle Division:
Few, if any, except in cases where the concern itself has failed, or the owners become from other causes distressed in circumstances. In a few cases *we* have been obliged to levy by orders, and warrants of distress on the property, but not more or so much in behalf of children as adults.

(b) Lostwithiel Division:
The complaints have been frequent, but much more frequent on the part of young persons against "takers" than against principals. These complaints have diminished considerably, and I attribute it to a prompt and very persevering practice on the part of our petty sessions.

(*c*) Launceston Division:
Confining my reply to *children,* I should say, very rarely indeed.

Devonshire District
Occasionally, complaints have been made to the magistrates, within the last eight or nine years, by persons employed in mines in this division, comprising ten parishes, for the recovery of wages, but in the great majority of instances, and I may say with scarcely but two or three exceptions, such complaints have been made by adults, and not by children or young persons. There are two woollen manufactories in this division, but I do not remember ever having had any application made by children or young persons working therein, against their employers.

IX. TREATMENT AND CARE

194. Very little is done in these mines in the way either of reward or punishment. The more rapid advancement of the diligent and skillful, and the giving them an opportunity of leaving work earlier than usual, and at times of earning a trifle for themselves' by the setting of tasks, are the only encouragements to exertion at all extensively employed. In a few mines, of which Wheal Vor is the most important, a premium is given to those girls who have attended at their work without interruption during the whole month. In the mine mentioned, 1s is the monthly reward for the first-class girls employed at "framing" and 6d that of the second class (Evidence, p. 841, 1. 20).

195. The superintendence of the agents is the only ordinary check on indolence or misconduct. Absence from work without leave (Evidence, p. 847, 1. 52), and

some particular offences, are punished by "spaling" (fine), differing in amount in different mines, but always moderate. Where these, or the reprimand of the agent, are ineffectual, dismissal is the only ulterior measure. Corporal punishment may be said to be never inflicted.* In fact, as there is no system of apprenticeship, any such punishment would be illegal, and it would certainly be resented by recourse to legal process on the part of the friends.

196. The boys employed under ground by the men are likewise subject to be "spaled" (fined) when they are absent from their posts at the regular hours; but the fine seldom much exceeds what is necessary to be paid for the procuring a substitute (Evidence, p. 848, 1. 52; p. 850, 1. 32). If the boy or his friends think it too heavy, application is made to the managers, and justice is done; but no interference is exercised between the men and their boys, except in extreme cases (Evidence, p. 848, 1.38). In some cases the fines are credited to the adventurers (owners), so that no gain can arise to the men from the infliction†

197. On the whole, the concurrent testimony of all the agents, and other well-informed parties, to whom inquiries have been directed, goes to show that not only is no corporal punishment or other ill-usage, inflicted by the men on the boys employed by them under ground, nor any tyranny exercised (Evidence, p. 834, 1. 70), but that there is a very general consideration, on the part of the men, of the age and powers of their young fellow-labourers, and a disposition to relieve them from any excess of toil, even at the expense of increased exertion of their own. The very frequent association in work of children with their parents or near relatives, contributes to the promotion of this generous and manly feeling (Evidence, p. 847, 1. 44).

198. The mutual relations between the managers of mines and the children and young persons employed under them may be said to terminate when the work of the day is closed. A large proportion of the mines are situated at a distance of several miles from the dwellings of both these parties, and no connexion between them could be well maintained except at the mines. The mining district between Redruth and Camborne is the most favourably situated for the continuing such relations beyond the limits of the places of work, and a beneficial influence arising from this continuance is more perceptible there than elsewhere. What is chiefly exhibited is, however, rather a regard by the general body of proprietors and. managers of mines for the benefit of the general body of mining labourers than a special attention to the individuals employed by themselves. Cases of gross misconduct out of the mine are generally brought under the animadversion of the agents, and reprimand or dismissal will follow (Evidence, p. 850, 1. 34).

X. PHYSICAL CONDITION

199. A strong line of demarcation must be drawn between the children and young persons employed at the surface and those employed under ground in these mines, in respect to certain points in their physical condition. The former may be said to be, speaking generally, in at least as good condition as the children in the neighbourhood otherwise employed; that of the latter is very distinctly inferior.

200. The *external appearance* of the children and young persons employed at the surface, taken as a class, is that of robust health. The complexion is generally florid, the person well formed, the expression alert and cheerful (Evidence, p. 830, 1. 58). Among the girls as they approach towards womanhood there is an inclination to *embonpoint,* and many of them possess a considerable share of personal beauty; in the central district perhaps most remarkably, the features being often handsome. The greater part of the boys are drafted off to under-ground work before the frame is at all fully developed, but they are generally healthy and well formed as long as they continue at the surface. The abundant supply of fresh air, and the variety of muscular movement are the main causes of their healthiness and their freedom from deformity respectively.

* The return from Fowey Consols Mine states, that "Many years since corporal punishment was inflicted here on two boys for theft, by order of the county magistrates; and three or four instances have occurred of fathers correcting their children publicly, in front of the counting-house, and in the presence of the agents, having their election either to correct their sons or have them discharged from the mine."

†The following returns will serve to show the systems usually adopted as to punishments: 1. At Dolcoath "Men are fined 5s for swearing and boys Is; men are kept without ‘subsist' for fighting." The agent adds, "I have not heard an oath sworn in this mine but once during ten years." 2. At Tresavean, "If they transgress, we turn them home for the day, for which they receive no pay." "Swearing, and other bad language, are punished by fines." 3. At Tretoil, "If a child be industrious, he is occasionally given a half-holiday." 4. At the Perran Mines, "Swearing, a fine of 2s 6d; drunkenness, 2s 6d; rioting, to be excluded from these mines."

201. When the boys exchange surface for under-ground work, they speedily lose the freshness of complexion in the first place, and gradually become for the most part sallow and sickly in hue (Evidence, p. 830, 1. 66; p. 848, 1. 31; p. 849, 1. 49; p. 850, 1. 45). This change is often, but not at all uniformly, associated with distinct unhealthiness, but it is no doubt connected with an impeded progress of development. No sort of deformity arises from their occupation. A very slight forward stoop is gradually acquired, and a rather long and cautious step, arising out of the habit of climbing, and of feeling the way among dark and dangerous places.

202. In *stature,* the difference which exists between those employed in mines, and others, is as regards the females in favour of the former, as has been partly stated already. The use of hammers tends perhaps to the production of some fullness of bust. In a former part of this report the weights of the men in different mines are given, and their stature is spoken of. The tendency of underground labour is to check the nutrition of the body, as has been already explained, and the degree of stunting produced will be proportionate to the earliness of the period of growth at which that labour is begun. Those who go under ground when very young often acquire after a short time the countenance of much older boys, whilst their size is below the average at their real age; their figures are also more set and angular than is natural in early life.

203. The *food* brought to the mines by the children and young persons is for the most part sufficient in quantity for the one meal usually taken by them there, and perhaps for a slight refection between breakfast and dinner. It is coarse in its quality and mode of preparation, and from these causes does not always afford sufficient nutriment, (Evidence, p. 821, 1.15; p. 845, 1. 53). The hoggans and pasties have been already described (Evidence, p. 821, 1. 51).

204. The children of both sexes seem to get on very well with this diet. It is chiefly among the females a few years older that dyspeptic affections are frequent. Stews and fish and potatoes mixed together, and sent warm from their homes, are most common in the western districts (Evidence, p. 841, 1. 1, 23; p. 847, 1. 37; p. 848, 1.27). The children appear to find half an hour long enough to take their dinners (Evidence, p. 826, 1. 26; p. 836, 1. 21), and usually to get a little play as well. The older females complain sometimes that it is too short (Evidence, p. 846, 1. 3; p. 851, 1. 44).

205. The extent of accommodation afforded for warming the food, varies much in different mines. The most ample provision is that of ovens for the purpose (Evidence, p. 836,1. 34); but this is unusual. In other instances, as at Fowey Consols, the long iron cylinder, heated by a fire at one end, used for heating the shed in which the meal is taken, serves also to warm the latter. In many places recourse must be had to the house in which the miners' clothes are dried (Evidence, p. 845, 1. 34); to the boilers of the steam-engines; or to the smiths' shop), to effect this object some instances, as at the Fowey Consols, where ovens are kept in the neighbourhood, those who wish to get their pasties effectually warmed, are able to have it done at the charge of a penny a week.

206. Cold water is most commonly the only drink to be obtained, and that is not always very abundant, sometimes brought from a considerable distance, and distributed in limited quantities (Evidence, p. 845, 1. 36). In a few mines there are facilities for obtaining hot water, or even a cup of tea, usually an infusion of indigenous herbs (Evidence, p. 836, 1. 35).

207. Under ground the boys take with them fare more or less substantial according to the part of the day in which their "course" of labour falls. But they always make use of some food whilst, they are below; and this is justly considered one of the most beneficial changes which have occurred in the habitual practices of the miners (Evidence, p. 826, 1. 14; p. 834, 1.1). The appetite is not always very keen in the hot and impure air with which they are surrounded, and sometimes very little of the food taken down is eaten there* (Evidence, p. 853, 1. 23,45). Butchers' meat is only combined in very small proportion with the different articles mentioned above, especially for the children. Beef is very little used; mutton is more common, but pork is the meat most largely employed for this as for all other purposes among the mining population (Evidence, p. 821, 1. 43).

208. The food obtained by the children and young persons at their homes varies very much in quality and abundance with the circumstances of the families. It

*At Dolcoath is found a solitary example of a provision of hot soup for boys as well as men, on their coming to the surface (Evidence, p. 837, 1. 60). This is more particularly described in a former part of this Report. Water is sent down in many copper-mines in small barrels or cans for the relief of the thirst, which is often very urgent. It is not always very accessible (Evidence, p. 824, 1. 69; p.825, 1. 7; p. 852, 1. 58).

is too frequently scanty (Evidence, p. 830, 1. 9, 18) as well as innutritious,* and is usually very coarsely prepared (Evidence, p. 835, 1. 27). Breakfast before going to work in the morning, and supper after their return, are the regular meals for those employed at the surface (Evidence, p. 822, 1. 28, 38, 54; p. 823, 1. 13, 45; p.845, 1. 55). The underground boys generally get some food when they reach their homes, at whatever hour that may be: at night some cold potatoes or bread probably be all that can be obtained. (Appendix A.)

209. Where the family is large and very poor it will often happen that the earnings of the young persons of either sex will be disposed of in providing absolute necessaries for the whole party, so that no difference is made in the amount of nourishment afforded to those employed in hard labour and the younger children not yet able to work (Evidence, p. 825, 1. 29; p. 828, 1. 52). Such circumstances frequently induce the young men to seek a separate residence at the age of 17 or 18; and the medical man will often be consulted by females who are feeling the ill effects of being so situated, suffering from painful dyspeptic affections, arising chiefly from their not having sustenance at all calculated to give them strength for their laborious life, and seeking a delusive comfort from the stimulus of tea, which is largely used by all females of the working classes in the West of England. A further cause of the scantiness of their fare will be noticed presently.

210. Speaking generally, the *clothing* of the children and young persons employed in these mines is good and sufficient. Among the females a great deal of attention is paid to dress, increasing with their approach *to* womanhood; but even the younger girls are usually furnished with very decent attire by their friends (Evidence, p.850, 1. 15). The occupations of the females not being usually very dirty, the ordinary dress, or one only slightly varied, is worn at the mine; additional protection is, however, commonly given to the lower part of the legs by wrapping them in woollen bands in the winter, and often in cotton ones in the summer. A certain smartness is noticeable in the bonnets, and in the manner of wearing them; they are generally small in the winter, and thrown rather back on the head, chiefly made of some lively-coloured material in some districts, and of straw in others; in summer they are commonly large, straight, and. projecting, with a long loose border, such as may afford effectual shelter from the sun. A rather amusing degree of concern for the preservation of the complexion is exhibited by some, who envelop their faces and throats with handkerchiefs, so as to present something of an invalided appearance.

211. On Sundays, and on any holiday occasion, apparel of a showy and often expensive description is commonly worn. Girls under the age of 18 have not often money at, their disposal for any great outlay in this line; but, without any disposition to underrate the value of a regard for personal appearance in the article of dress, as an evidence of self-respect, the writer is obliged to notice the existence of what may fairly be called a passion for dress, as very extensively diffused among the young women connected with the mines ill every district (Evidence, p. 832, 1. 69.) As a medical man, he has often had cases brought under his notice in which he has been satisfied that disordered health has been mainly induced by coarse and scanty nourishment, whilst the patients have presented themselves in dresses only to be procured at very considerable cost. The same love of display is shown in the wearing of thin shoes and stockings during weather in which they are very unsuitable, causing a dangerous transition from the thick shoes usually worn by them, and the legs rolled up in woollen bands just now described. There is reason to believe that the provision of warm inner garments for the colder season is by no means correspondent with the outlay on those external ones which may serve to increase the personal attraction of the wearers.†

212. The work of a large proportion of the boys employed at the surface exposes them to wet and dirt; and, however wet or dirty they may be, the same clothes are worn from the time they rise in the morning until bed-time at night; and it is well if they are effectually dried before they are put on again on the following day (Evidence, p. 823, 1. 10). The clothing is generally sound and sufficiently decent for labouring boys, and a good protection against cold and wet is commonly furnished in thick woollen frocks (Evidence, p. 850, 1. 53), worn out-

* Much improvement is stated to have taken place, within thirty years in the quality of the food; less barley is said to be used, and more meat (Evidence, p. 829, 1. 32; p. 841, 1. 25).

†Some of the girls are liable to get wet, especially in the feet, in their employments; and all are so in coming to the mines. No provision is ever made there for a change of shoes or stockings under these circumstances, and the liability to injurious chill is consequently great, particularly to those (a large majority of the whole class) whose labour gives little or no exercise to the lower limbs (Evidence, p. 845, 1.18).

side during the winter. The whole body moreover is brought into pretty active exercise in most of their occupations.*

213. The boys, like the men, when they go under ground, substitute for their ordinary apparel a loose woollen dress, thick shoes without stockings, and a strong hat with a convex crown, usually weighing from one to two pounds, and affording efficient protection to the head from falling bodies and blows, on which the candle is for the most part placed, inserted into a lump of wet clay. In very hot places the miners often throw off the greater part of the clothing of the body, and work almost in a state of nudity. On their return to the surface the under-ground garments are hung in a building appropriated to that use, called the "dry" or "drying-house", and the ordinary dress is resumed. The habit of wearing flannel next the skin is prevalent among the miners, and the boys working under ground are commonly provided with it. Their surface attire is very decent, and generally kept in pretty good repair. As they advance in age, a similar inclination to that manifested by their companions of the other sex, to smartness of dress, is developed; though it cannot usually be much indulged within the age to which this inquiry refers.

214. *Cleanliness* of person and dress will almost attend as a natural concomitant of that regard to appearance which has been noticed as exhibited by both sexes; it is accordingly *the rule* among the children as well as the young persons. Of the latter, the greater part employed on the surface are females. Their work is not usually very dirty, and even when engaged about it they preserve a very cleanly appearance. At other times their fresh and clear skin, and well-washed clothing, correspond with the smartness of the articles themselves of their attire. The younger girls are neither equally well clothed, nor equally clean; and the work of the greater number (picking) exposes them more to wet and dirt. Still there is generally, even here, a degree of neatness, proving the disposition to do as well as circumstances permit. The little boys are most extensively employed in the midst of mineral mud, but they generally get rid of a great deal of it when their work is over. More might certainly be done in respect of these, both as to person and clothing. Still it is exceedingly rare to meet with an example of squalid filthiness in any member of a miner's family.

215. The under-ground boys are in the habit, as well as the men, of washing on their return to the surface, before resuming their ordinary dress. This being a process applicable to miners of every age, it is described, together with the accommodation provided for its efficiency in different mines, at a former part of this Report. The activity of the skin in early life, and the greater liability to inflammatory affections from chilling of the surface, render these accommodations more essentially beneficial to the youthful than even to the adult miner.

216. The generally healthy condition of the children and young persons employed at the surface in these mines has been already noticed. In the principal mining districts comparatively few individuals belonging to families of the poorer class remain unconnected with mining labour during the period of life with which this inquiry is concerned. It is therefore difficult to ascertain whether the *amount of sickness* is greater or less among those working at the surface than among those remaining at home or otherwise employed. The concurrent testimony of medical men, mine agents, and other well-informed parties, is to the effect that no young people are more healthy (Evidence, p. 830, 1. 57; p. 835, 1. 2: p. 848, 1. 56; p. 850, 1. 42). By one medical deponent a comparison is drawn (Evidence, p. 835, 1. 9) between the mining and manufacturing girls, to the advantage of the former. Evidence may also be seen, that the exchange of the occupation of straw-bonnet making (p. 823, 1. 22), and of domestic service (p. 852, 1. 41), for surface-labour at a mine, may be positively beneficial to the health. The opinions of other medical men in different districts, equally favourable, may be seen in the Appendix (F.)

217. On the other hand, a certain amount of sickness is distinctly produced by the work itself, or its attendant circumstances. Many instances of this have been referred to, in treating of the particular branches of employment. The depositions of the patients examined furnish many other examples.† The nature and amount of the ailments of these boys and girls may be estimated from the following table (21), which exhibits the results of the most perfect of the returns made on the tabular forms:

* In a few instances, where boys are employed (as in some of the washings of tin ore) almost constantly in the water, they are provided with waterproof boots by the mine, usually one pair in the year. This is also sometimes the case with those who work in the sump, and with timbermen (Evidence, p. 850, 1. 52).

†One of the surgeons of Wheal Vor Mine confirms the statement given in the Evidence (p. 842, 1. 42), of the frequency of certain disorders in that mine. (See his answers to queries, Appendix F.)

TABLE 21.—Showing the Nature of the Illness or Injury detaining the Children and Young Persons of both sexes from work at the Surface in the Charlestown United Mines, during one Year; together with the loss of time occasioned thereby.

Disease or Injury.	Number affected.		Average Age.		Average Loss of Time.		Employment at the Mine.	
	Males.	Females.	Males.	Females	Males.	Females.	Males.	Females.
Fever. Typhus	..	1	..	15·3	..	5 weeks.	.. ..	Recking.
Fever. Bram	..	1	..	14·	..	2 months.*	.. ..	Ditto.
Fever. Measles	2	1	11·8	13·	1½ week.	5½ weeks.	Serving buddle.	Ditto.
Fever. Influenza	..	3	..	16·4	..	1½ week.	.. ..	Ditto.
Fever. Nature not stated	1	2	12·2	13·10	2 weeks.	6 weeks.	Recking.	Ditto.
Cold	2	6	13·6	16·4	4 days.	3 weeks.	Serving Buddle.	4 recking, 2 spalling.
Inflammation in side	..	1	..	17·10	..	9 days.	.. ..	Recking.
Affection of bowels and stomach	16	4	13·4	13·11	9 days.	3 days.	5 recking, 5 buddling, 3 rolling, 1 stamps-pits, 1 jigging, 1 tyeing.	Ditto.
Pain in side	..	3	..	16·	..	2½ days.	.. ..	2 recking, 1 picking.
Headache	11	17	11·5	14·4	5½ days.	1 week.	8 recking, 1 serving buddle, 1 tyeing, 1 rolling.	14 recking, 2 picking, 1 spalling.
Toothache	..	1	..	17·2	..	4 days.	.. ..	Picking.
Sore feet	5	..	13·10	..	2½ days.	..	3 rolling, 1 serving buddle, 1 stamps-pits.	
Weakness	1	..	13·3	..	3 days.	..	Rolling.	
Asthma	..	1	..	16·	..	3 days.	.. ..	Recking.
Chilblains	2	..	11·6	..	2 weeks.	..	1 recking, 1 tyeing.	
Gathering (abscess)	3	..	12·4	..	2 months.*	..	2 recking, 1 serving buddle.	
Tumour	1	..	14·9	..	4 weeks.	..	Tyeing.	
Arm injured	1	..	10·2	..	2 weeks.	..	Recking.	
Totals	45	41	12·6	15·3	14·6 days.	19·6 days.	18 recking, 5 buddling, 5 serving buddle, 8 rolling, 4 tyeing, 2 stamps-pits, 1 jigging.	28 recking, 3 spalling, 4 picking.

The omission of one case of absence (from the list of Male sufferers), which detained the boy six months from the mine, will reduce the average loss of time to about 11 days but the substraction of the two months case of fever from the female side will still leave the average loss of time by the girls nearly 16 days. Of the total number of children and young persons returned as employed in the mine (208), 114 are boys and 94 girls, so that a much larger proportion of the latter appear to have lost time in this way than of the former of the whole 208 employed, 112 (32 boys and 80 girls) are entered as "recking" (elsewhere termed "framing"), being something more than half, but it will be seen that of the cases of *headache* (28) four-fifths happened to those thus employed. *Sore feet* and *chilblains are* entered as happening to boys only, being those employed in wheeling barrows and working in the mud. The boys are also registered as suffering in much the greater proportion from *affections of the bowels,* whilst *pain in the side* and *influenza* belong exclusively to the other sex.

218. But perhaps the evidence which will induce the most hesitation in acceding to the opinion that no greater evil results to the health from surface labour at the mines than from other occupations, is that derived from a comparison of the proportions of deaths of females, between certain limits or age, in mining parishes, and in parishes otherwise similarly circumstanced, in which no mining is carried out. The results of this comparison have been given in the introductory part of this Report (Table 3, p. 742), and they may be referred to in proof that this description of labour is by no means innocuous. But how much of the excess of mortality is to be attributed to working at the mines, and how much to other conditions,—to hereditary predisposition especially,—it must remain for further investigations to decide.

219. It seems probable that the ruddiness of hue imparted by constant exposure to fresh air, may give to these boys and girls an appearance of health to a certain extent deceptive. Moreover, as their ailments are, for the most part, of rather acute character, they prevent those who are suffering from them from coming to work, and thus the appearance of the whole body is not rendered less healthy by the admixture of many individuals labouring under disease: but some of these disorders prove rapidly fatal, and a greater number pass into incurable structural changes.

220. But whatever be the ultimate influence on the average duration of life produced by these surface operations, it is certain no kind of surgical disease beyond the results or accident is occasioned by them. It would be difficult to find anywhere a class of girls and young women more free from malformation, distortion, or infirmity. The whole body is exceedingly well and equably developed, the muscular movements easy, and the step firm and elastic.

The following tabularised summary of some returns made on the Special Tabular Forms addressed to medical men will further illustrate this statement:—(See Table No. 12, next page.)

221. Neither is there any prevalence of medical diseases, acute or chronic. Fever, whether epidemic or sporadic, is infrequent, and, when generally diffused through their neighbourhood, does not affect the young people employed on mines

TABLE 22.—Showing the particulars respecting a Number of Families where the Mothers have been employed at the Mines previously to their Marriage.

Age of Mother.	Work on which she was employed before Marriage.			Age at Marriage.	Number of Children			Of whom				Of the living.				Average Number of Years during which they have been employed in mining.				Of the Children.				Average Age at which Mining labour began.		Remarks.
					Born alive.		Stillborn.	Are alive.		Have died.		Average age.		Extreme age.		Males.		Females.		Are healthy.		Are sickly.		Boys.	Girls.	
	Nature.	Age at which she commenced.	How long continued.		M.	F.		M.	F.	M.	F.	M.	F.	Oldest.	Yngst.	No. employed.	Years.	No. employed.	Years.	M.	F.	M.	F.			
44	Mining	12	Some years.	19	5	8	2	5	7	..	1	11	14·1	24·	2·	2	7·5	5	7·4	5	7	..	..	11·	11·1	Many instances might be adduced of whole families in a perfect state of health, working at the Fowey Consols Mines, whose parents were engaged in their youth in the same employment.—*Return.*
45	Ditto.	14	Several years	24	3	5	..	3	5	..	..	10·1	12·8	19·	4·	2	3·8	2	9·5	3	5	..	..	9·	8·8	
36	Ditto.	8	14 years.	22	2	7	..	1	6	1	1	8·2	7·5	14·	0·2	..	..	3	2·4	1	6	..	..	..	10·2	
44	Ditto.	..	13 years.	28	2	5	..	2	4	..	1	7·5	9·	13·5	1·5	1	2·	3	1·	2	4	..	..	11·5	9·5	The girl who died had been for three or four years employed at the mines. She had been perfectly healthy till attacked by a prevailing fever, from a relapse into which she died.—*Return.*
32	Do., and 4 years in service.	..	6 years.	19	3	2	..	2	2	1	..	6·	4·	7½	3·	Not yet employed.				1	2	1	..	..	..	One child lived only two weeks; one boy has been always weak, and is asthmatic. The other is stated to be affected with scrofulous ophthalmia.
..	..	..	..	..	6	5	1	4	4	2	1	31·	22·5	36·	14·	4	20·5	2	8·5	4	4	..	..	10·5	9·5	The three children died in infancy; two of them from small-pox, not having been vaccinated.
..	..	..	..	..	5	3	..	5	3	..	..	17·6	19.6	25·	10·	5	5·6	1	12·	5	3	..	..	11·8	10·	Another girl (now 27) was married in 1836, after having worked 12 years at the mines. The oldest boy worked at a farm two or three years previously to his going to the mines.
..	..	..	..	..	1	5	..	1	4	..	1	21·	21·	25·	17·	1	17·	3	10·6	..	3	1	1	6·	9·8	One died in infancy. The boy sickly since 14; glandular tumours. One girl very sickly from infancy; affection of bowels.
..	..	..	..	..	4	4	..	4	4	..	..	20·2	10·	25·	5·	4	10·2	None employed.		4	4	..	..	10·	..	The boys all worked under ground from their 11th year. The eldest girl has never worked out; the three younger are at school.
..	..	..	..	..	8	2	1	6	2	2	..	8·5	13·	17·	3·	3	2·3	1	7·	6	2	..	..	10·	10·	The eldest boy died at nine years of age; he had never worked. The other died in infancy. The three other boys work at surface. The four younger children are not yet employed.

NOTE.—In the five latter entries the husband's name has been, through inadvertence, given instead of the wife's; the particulars of the mother's history are therefore unknown. But it has been, in each case, stated that the father was only once married; and it is almost certain that the wife had been employed at the mines. The four first families have been connected with the Fowey Consols Mine, the six latter are taken from the neighbourhood of Camborne. The Returns have been made by Messrs. Pace and Taylor, and by Mr. R. Lanyon, respectively.

in any greater proportion than others. Scrofula is not common among this class, atrophy is very rare. There is reason to believe that consumption is more frequent than in non-mining districts; whether it is more frequent among those members of millers' families who are engaged in surface labour at the mines than among those members who are not so employed, must for the present, as has been before remarked, remain in doubt.

222. These observations are equally true of the boys whilst they remain at the surface; but they almost all have gone under ground for several years before they have reached the age of 18. The *amount of sickness* among them in this last situation must therefore be next considered. No register is kept of the daily attendance of the under-ground boys at the mines, so that there are no means of ascertaining what time they have lost, except from their own recollection; and the returns made on the Tabular Forms are in this particular too vague for the establishment of any trustworthy conclusions. The attendance of the surgeon under contract is limited usually to cases of injury, so that the data for finding the average amount of sickness among a given number of boys are very defective. Observation, therefore, and the experience of individual medical men, must furnish our chief materials for a decision. It has been shown in the introductory division of this Report (p. 741, Table 2, &c.), that the average life of the miner is very materially shorter than that of other labourers in the same neighbourhood, and that the greater part of this short-living is produced by the greater prevalence of *consumption,* whilst *accidents* contribute in an important measure to the result. The nature and causes of this consumption, as affecting miners generally, have been discussed, as well as the subject of mine accidents: and it only remains necessary to add a few remarks on the influence of the early employment of boys under ground in producing this excess of mortality, to what has been already said when treating the nature of their employment, and the state of the place of work.

223. I have seen a great many men in these mines who have attained different ages, more or less advanced, and have preserved their constitutions equally well with the more healthy portion of the non-mining population; though they have gone under ground regularly through a long series of successive years. Some of these have possessed a remarkable robustness of frame, which seems to have withstood all external injurious influences, but by far the greater part have either not begun to work under ground till they were 17 or 18 years of age, or have been so circumstanced as to be provided with ample nourishment, and to be taken care of on the first appearance of ill health. Examples of each of these conditions may be found in the Evidence (p. 839, 1. 56, 66; p. 838, 1. 59; p. 841, 1. 69).

224. Again, I have met with many others who, finding the working under ground incompatible with the preservation of health, have either found occupation at the surface or have quitted the mines altogether. (Instances may be seen, Evidence, p. 828, 1. 17 p. 829, 1. 51; p. 831, 1. 14; p. 836, 1. 59).

225. But when a boy, originally, perhaps, inclined to consumptive disease, having often a declining father (Evidence, p. 843, 1. 55; p. 831, 1. 9), sometimes left as the principal stay to a widowed mother with a large family (Evidence, p. 831, 1. 32; p. 840, 1. 24; p. 846, 1. 62), obtains at 10 or 11 years of age a place under ground, he works with spirit for some years, but he expends the whole capital of his constitution. He cannot give up his place whilst he can possibly do the work, for the necessities of his home render any exercise of parental authority rarely required to urge him forwards. He cannot get the kind of nourishment, or enough of it, to support his strength under exhausting labour, still less to give full materials for the development of the frame in its just proportions. The result is that he falls a victim either to acute disease, often produced by the rapid transitions of temperature occurring to every miner, or to consumption pursuing rather a rapid course, and frequently preceded by hemoptysis. This is a statement of facts which have repeatedly fallen under my own notice; similar ones may be seen in Evidence (p. 28, 1. 18; p. 835, 1. 45).

226. Where there is more power of resistance in the original constitution, the effects of the excess of labour, deleterious and exhausting agencies, and deficient nutriment, will be evidenced chiefly in a stunting of growth and a general feebleness (Evidence, p. 824, 1. 62). In these cases life is often prolonged, and the occupation of mining continued for many years, though the labour is always felt more or less oppressive (Evidence, Nos. 16 & 17), and is generally interrupted by attacks of illness; but such men have always the appearance of being older than they really are, and from 35 to 45 years of age they are often completely broken down, and at that period of life frequently fall into the slower and more characteristic form of

consumption common among miners, and do, I am well convinced, contribute very much indeed to swell the lists of premature deaths by which the average life of the miner is rendered so much shorter than that of his agricultural neighbour.

227. Various forms of unhealthy action occur among the boys working under ground, whether as preludes of the early termination of life, or concomitants of the defective development noticed above, or as affecting those on whom they operate as timely warnings to quit the occupation altogether, or those whose more robust constitutions, or more favourable circumstances, enable them to resume it without permanent detriment.

228. Disordered action of the heart, sometimes connected with hypertrophy, or with the changes consequent on rheumatism, but more commonly without structural mischief, is a frequent occurrence. It is often associated with derangement of the functions of digestion, and both classes of symptoms may have been occasioned by exposure to "poor air". But I have seen several cases in which the palpitation appeared to have resulted purely from repeated over-exertion of the organ; and in some of these there was reason to believe that the food was very insufficient. That weakness, and correspondent irritability, were the conditions under which this unnatural action took place, was further shown by the perfect success of a treatment essentially tonic.* Instances of affections of the heart, varying in character as above detailed, may be found (Evidence, p. 840, 1. 18, 27; p. 841, 1. 69).

229. Affections of the organs of respiration are frequent, and are either of the acute inflammatory nature, to which sudden transitions of temperature will give rise, and consequently most common among those who work in the shallower mines, or parts of mines, and where the air and water is cold (Evidence, p. 835, 1. 55; p. 828, 1. 11; 840, 1. 16); or they are of it more chronic form, apparently connected with the repeated inhalation of noxious gases and particles of matter, and, perhaps, with over-distention of the ramifications of the air-tubes and cells. Where inflammation is not produced, a more abundant secretion from the surfaces to which those noxious agents are applied is the protection and mode of elimination furnished by nature, but this secretion being associated with an increased flow of blood to those surfaces, the reiterated call for the one renders the other almost continually necessary. The consequences are an engorged and thickened state of the linings of the air-tubes, and a contraction of their bore, leading to forced dilatation afterwards in the course of violent respiratory efforts. Instances of such dyspnoea may be found (Evidence, p. 872, 1. 46; p. 848, 1. 17; p. 853, 1. 58). It is probably an engorgement of the above description, affecting the larynx and trachea, which produces the hoarseness very commonly noticeable among these boys, examples of which occur in the Evidence (p.843, 1. 57; p. 853, 1. 39; p. 854, 1. 1).

230. The affections of the digestive organs chiefly met with among the boys working under ground are disorders of the stomach, connected with the inhalation of "poor air", and seeming to be merely secondary to the influence of this air upon the brain. Pain in the head, becoming intense on stooping, giddiness proceeding sometimes to loss of consciousness, failure of muscular power, are described by miners of all ages as effects of this deleterious agent (Evidence, p. 854, 1. 61; p. 852, 1. 50; p. 853, 1. 8, 22); but the greater irritability of the young subject seems to occasion the sympathetic affection of the stomach, shown by loss of appetite, nausea, or vomiting† (Evidence, p. 853, 1. 11, 23, 45). The powers of digestion are usually recovered in these cases very readily on the return to a pure air. It is at a later period of adolescence, approaching the limit of this inquiry, that more permanent dyspepsia often occurs (Evidence, p. 835, 1. 20), arising mainly, I believe, from the general feebleness induced by premature under-ground labour, partly perhaps from repetition of the more transient disturbance just now spoken of, and increased by coarseness of fare, and at, times by the use of tobacco, which is often commenced at about this age.

231. No other forms of sickness can be said to be at all prevalent among this class of boys. From diseases of the skin it has even been supposed that they enjoy something approaching to immunity; and though I have met with many cases even within the last few months, to accede to that opinion, it seems probable that the free action of the skin, promoted by underground labour does tend to preserve it, from eruption.

*It will be seen, on reference to Evidence, p.825, 1. 59, that of seven boys examined very soon after their coming to the surface on the conclusion of their day's work, the pulse in all but one proved the exhaustion of the muscular power of the heart, produced by the circumstances of their labour.

†A more minute detail of the symptoms occasionally arising from this noxious agent is given in the Appendix (F.)

232. Excluding the effects of accidents, no surgical disease whatever occurs among these more frequently than among other labouring boys. They are indeed remarkably exempt from distortion and from hernia. The defective development spoken of more than once applies to the body as a whole, and not obviously to one part more than another; certainly it is not localised to the extent of causing deformity.

XI.—MORAL CONDITION.

233. Sunday-school instruction is very extensively diffused throughout the mining districts of the West of England. One at least of these schools is connected with the Established Church in almost every mining parish. but by much largest number are under the direction of the Methodists, chiefly Wesleyans. A few are connected with the Baptists and Brianite sects. The following table will exhibit a view of their distribution in some parishes in the several districts from which returns of some accuracy have been received, and will serve as fair examples of the general state of this particular provision of the means of instruction:—

TABLE 23.— Showing the Number of Sunday, Day, and Evening Schools in several Parishes in the different Districts, with other Particulars concerning them, as stated in the Returns to the printed Queries.

District.	Parishes.	Sunday Schools.				Day Schools.		Evening Schools.		Remarks.
		Church of England.		Dissenters.						
		No. of Schools.	No. of Scholars.	No. of Schools.	No. of Scholars.	No. of Schools.	No. of Scholars.	No. of Schools.	No. of Scholars	
			Boys. Girls.		Boys. Girls.		Boys. Girls.		Boys. Girls.	
Western.	St. Just	3	.. ..	10	1100	11	290	1	.. ..	These returns include the adjoining parishes of St. Buryan, St. Levan, and Sennen, which are chiefly agricultural.
	Madron	2	.. ..	7	1000	2	Large schools, one National, the other on the Glasgow system	..	.. ..	Including Mervah. The town of Penzance is the principal seat of education: very few miners.
	Zennor	1	.. ..	1	.. ..	2	.. ..	1	.. ..	A small parish on the north coast; mining and agricultural.
	Marazion	1	34 ..	2	86 87	2	.. ..	..	.. ..	A small town in the parish of St. Hilary; some of its population are miners.
	Lelant	1	.. ..	1	.. ..	1	.. ..	..	.. ..	Population about equally mining and agricultural.
	St. Ives	2	.. ..	5	.. ..	6	.. ..	..	.. ..	A sea-port town on the north coast; population fishermen and miners chiefly.
Central.	Breage	2	250	2	220	..	.. ..	..	.. ..	A mixed mining and agricultural parish, on the south-west of the Central District.
	Camborne	1	125	8	1346	9	563	5	57 ..	A great mining parish.
	Illogan*	..	.. ..	..	.. ..	6	.. ..	..	.. ..	Of the six schools noticed, two are for boys, and contain 162 scholars, and four for girls; there are several other schools in the parish.
	Gwennap	6	.. ..	9	.. ..	..	.. ..	5	.. ..	Including St. Day; mining population.
	St. Agnes	..	.. ..	14	842 773	9	.. ..	4	.. ..	Including Perranzabuloe; population mining.
	Perranarworthal	1	.. ..	1	.. ..	6	.. ..	1	.. ..	Of the day-schools, one is for boys and two for girls; the other three are dame-schools; population mining, manufacturing, and agricultural.
	Kea	1	.. ..	..	.. ..	5	.. ..	2	.. ..	Mining and agricultural.
Eastern.	Tywardreath	2	.. ..	1	.. ..	15	.. ..	2	.. ..	Of the 15 day-schools, 13 are kept by women; population chiefly mining.

* It is stated that there are several Sunday-schools in this parish in connexion both with the Church of England and Dissenters, but the particulars are not given. Several day-schools also exist, of less importance than those mentioned.

The following accurate return for the parish of Camborne, for which I am indebted to the Rev. Hugh Rogers, the rector, will give a just view of the nature and extent of school instruction in those parts of the mining districts in which it is most amply provided:

TABLE 24

Kind of School.	Situation.	By whom kept.	Scholars on the Books.	Hours of Instruction.	Description of Scholars.	Branches of Instruction.
	Camborne.	Established Church	125	A.M. 9—10½ P.M. 2—3	Chiefly children of miners, or miners.	Reading and religion.
	Ditto . .	Wesleyan Methodists	400	Ditto.	Ditto.	Ditto.
	Ditto . .	Bible Christians . .	50	Ditto.	Chiefly children of miners.	Ditto.
	Kehellard .	Wesleyan Methodists	100	Ditto.	Ditto.	Ditto.
	Tuckingmill	Ditto	230	Ditto.	About two-thirds working miners, and one-third children of do.	Ditto.
	Adjavella .	Ditto	140	Ditto.	About one-half miners' children: one-seventh working themselves in mines.	Ditto.
	Troon . .	Ditto	300	Ditto.	Chiefly working in mines, or miners' children.	Ditto.
	Brea . .	Brianites . . .	140	Ditto.	Chiefly children of miners.	Ditto.
	Condurrow	Primitive Methodists	75	Ditto.	Ditto.	Ditto.
	Camborne.	British	205	A.M. 9—12 P.M. 2— 4½ or 5	Chiefly children of miners.	Reading, writing, arithmetic, examinations in the Scriptures, &c.
	Ditto . .	Mr. J. Thomas . .	50	Ditto.	About four children of miners, the rest of mechanics.	Reading, writing, and arithmetic.
	Ditto . .	Mrs. Tallack . .	25	Ditto.	Chiefly children of miners.	Reading, writing, &c.
	Tuckingmill	Mr. Phillips . . .	33	Ditto.	About six only children of working miners.	English grammar, geography, and maps, mathematics and French. (O.)
	Ditto . .	Mr. Shackerley . .	40	Ditto.	Chiefly children of miners.	Reading, writing, and arithmetic.
	Troon . .	Mr. J. Rowe . .	50	Ditto.	Ditto.	Ditto.
	Kehellard .	Mr. H. Nicholls, (aged man).	20	Ditto.	Ditto.	Reading, writing, &c.
	Brea . .	Mr. W. Thomas. .	37	Ditto.	Ditto.	Ditto.
	Penponds .	Mr. S. Whear . .	51	Ditto.	About one-half children of miners, ditto, mechanics, tanners, &c.	Ditto.
	Camborne.	Mr. J. Vivian . .	20	P.M. 7—9	Generally working miners; about four females, dressmakers.	Reading the Scriptures, writing, summing, and grammar.
	Ditto . .	Mr. W. Jenkin . .	12	About do.	Chiefly mechanics; three miners.	Writing, arithmetic, and grammar.
	Tuckingmill	Mr. Phillips . . .	10	P.M. 6—8½	Chiefly young miners.	As above. (See O.)
	Kehellard .	Mr. H. Nicholls . .	12	Ditto.	Ditto.	Reading, writing, and summing.
	Brea . .	Mr. W. Thomas .	3	About 7—9	Ditto.	Writing and summing.

234. The number of children and young. persons actually employed in the mines, who are in the habit of attending Sunday-schools, is stated in the next table.

TABLE 25. Showing the Number of Children and Young Persons in the Several Mines and Mining Districts who attend Sunday Schools, who are able to read, and who have written their names on the Tabular Forms.

Mines.	Principal Produce.	Number of Persons Employed.						Number who attend at Sunday School.		Number who can read an easy book.		Number who have written their names on the Tabular Forms.				
		Above 18.		From 13 to 18.		Under 13.						Males.			Females.	
		Males.	Fem.	Males.	Fem.	Males.	Fem.	Males.	Fem.	Males.	Fem.	No.	Avr. age.		No.	Avr. age.
													Yrs.	Mths.		Yrs. Mths.
Boscaswell	Tin . . .	135	2	15	..	20	..	27	..	33	..	7	13	8	..	.. ..
Wheal Owles . . .	Ditto . . .	165	..	24	..	10	..	19	..	33	..	17	14	11	..	.. ..
Levant	Copper & Tin	390	24	67	14	36	5	69	9	91	12	34	15	1	1	16 7
Parknoweth . . .	Tin . . .	76	1	21	..	29	..	29	..	35	..	8	12	3	..	.. ..
Ballaswidden . . .	Ditto . . .	535	18	40	17	52	..	12	..	39	17	7	12	2	..	.. ..
Botallack	Copper & Tin	133	16	19	10	13	1	12	..	23	..	9	13	7	..	.. ..
Bosweddan . . .	Tin . . .	81	2	24	..	7	..	11	..	23	..	10	14	9	..	.. ..
Total of St. Just District	..	1515	63	210	41	167	6	182	9	277	29	92	..	..	1	.. ..
Wheal Darlington . .	Tin & Copper	256	31	25	23	13	5	22	18	36	27	15	15	2	2	14 5
Wheal Mary . . .	Tin . . .	132	17	13	3	16	..	20	1	25	3	2	12	10	..	.. ..
Ding Dong	Ditto . . .	250	13	34	11	17	3	20	6	36	9	22	14	5	1	16 0
St. Ives Consols . .	Ditto . . .	351	12	34	9	37	..	38	3	64	9	16	13	7	..	.. ..
Reeth Consols . . .	Ditto . . .	107	15	26	3	21	..	28	3	38	3	2	13	2	..	.. ..
Wheal Reeth . . .	Ditto . . .	71	8	13	5	8	..	14	5	18	5	3	11	11	..	.. ..
Trevidgea	Ditto . . .	51	3	3	1	3	..	5	1	6	1	2	13	0	..	.. ..
Providence Mine . .	Copper & Tin	102	8	23	4	9	2	16	3	28	6	8	14	16	..	.. ..
Lelant Consols . .	Tin . . .	39	3	3	..	12	..	11	..	12	..	1	11	2	..	.. ..
Total of St. Ives District	..	1359	110	174	59	136	10	174	40	263	63	71	..	..	3	.. ..

TABLE 25—*continued.*

Mines.	Principal Produce.	Number of Persons Employed.						Number who attend at Sunday School.		Number who can read an easy book.		Number who have written their names on the Tabular Forms.				
		Above 18.		From 13 to 18.		Under 13.						Males.			Females.	
		Males.	Fem.	Males.	Fem.	Males.	Fem.	Males	Fem.	Males.	Fem.	No.	Avr. age. Yrs. Mths		No.	Avr. age. Yrs. Mths.
Wheal Prosper	Copper & Tin	184	33	10	6	16	2	16	6	22	8	11	13	3	..	.. ..
Wheal Friendship	Tin & Copper	214	45	22	14	14	4	19	9	21	15	4	13	5	..	.. ..
Trevaskus	Copper & Tin	82	30	10	10	9	2	16	6	16	11	10	12	5	2	10 8
Godolphin	Copper & Tin	..	..	..	..	..	..	83	18	90	22	27	14	3	..	.. ..
Wheal Vor	Tin	..	..	..	..	..	..	187	138	182	150	28	12	5	3	16 6
Wheal Speed	Copper	95	19	18	29	10	4	14	16	17	27	1	11	0	..	.. ..
British Silver	Lead, &c.	93	10	27	12	8	4	19	12	28	14	5	15	8	..	.. ..
Nancegollan	Tin	35	6	4	3	8	..	6	3	8	6	2	12	7	..	.. ..
Total of Central District West.	..	..	..	..	..	..	..	360	208	384	253	88	..	..	5	.. ..
North Roskear	Copper & Tin	320	100	34	33	21	13	40	27	50	22	17	13	5	1	15 2
South Roskear	Ditto	120	50	37	14	22	4	21	9	26	9	6	13	6	1	17 7
Dolcoath	Ditto	404	90	70	74	69	34	85	76	80	75	40	13	7	8	13 5
East Wheal Crofty	Ditto	586	200	51	30	38	20	49	26	78	48	26	14	2	1	12 1
Total of the Camborne Division.	..	1430	440	192	151	144	71	195	129	234	145	89	..	..	11	.. ..
Wheal Uny	Copper	135	5	15	9	10	..	18	3	22	9	4	12	3	..	.. ..
Wheal Tehidy	Ditto	50	10	13	..	..	..	11	..	10	..	3	17	0	..	.. ..
Treleigh Consols	Ditto	95	17	7	41	4	13	12	17	11	36	1	12	0	..	.. ..
United Hills	Ditto	170	55	26	31	12	19	16	48	14	46	..	..	..	1	16 0
Wheal Buller	Ditto	92	19	14	16	9	10	10	9	13	21	3	13	9	2	13 9
Tresavean	Ditto	481	143	121	126	72	57	142	94	53	129	34	13	11	9	13 9
Total of the Redruth Division.	..	1023	249	196	223	107	99	109	171	..	241	45	..	..	12	.. ..
West Wheal Jewell	Copper	100	15	17	..	7	..	10	..	10	..	..	..	..	..	.. ..
United Mines	Ditto	626	182	222	120	62	69	132	72	163	94	50	14	7	2	16 0
Consols	Ditto	954	141	234	152	41	146	74	135	95	175	21	14	0	5	15 0
Wheal Jewell	Ditto	175	35	..	..	..	..	25	11	44	16	13	14	2	..	.. ..
Grambler and St. Aubyn	Ditto	27	2	17	..	1	..	10	..	14	..	7	16	2	..	.. ..
Total of the Gwennap District.	..	1882	375	..	..	..	..	251	218	326	285	91	..	..	7	.. ..
Wheal Busy	Copper	12	12	5	..	2	2	2	2	7	2	..	..	..	..	.. ..
Hallenbeagle	Ditto	300	50	..	..	..	..	49	42	59	50	12	12	7	2	15 10
Bissoe Bridge	Tin	70	6	38	17	22	3	37	..	46	20	35	15	3	..	.. ..
Polberon Consols	Ditto	136	14	48	28	43	5	61	19	80	26	25	13	4	2	14 6
Wheal Coates	Ditto	110	7	35	2	10	..	29	2	41	1	19	15	0	..	.. ..
Wheal Kitty	Ditto	98	12	17	24	17	2	22	13	30	24	5	13	10	1	15 5
Perran	Copper	74	10	35	9	..	..	19	6	31	9	13	15	7	3	16 0
Great Wheal Charlotte	Tin	61	30	3	13	..	1	2	11	2	15	1	13	1	1	17 8
Budnick	Copper & Tin	172	21	31	23	23	10	46	28	52	33	21	12	10	6	16 0
Cornubian	Lead	93	16	22	10	3	1	20	1	24	8	9	14	1	..	.. ..
East Wheal Rose	Ditto	..	..	..	..	..	..	49	30	55	47	9	15	3	2	15 0
Total of the N.E. Division of the Central Dist.	..	..	..	..	..	..	..	336	154	437	225	149	..	..	17	.. ..
Carnsmorry	Tin	122	23	18	10	9	1	13	4	22	6	5	14	4	..	.. ..
Polgooth	Ditto	140	15	41	7	21	..	37	6	59	7	17	14	4	..	.. ..
Great Wheal Prosper	Do. and China Clay.	28	12	3	1	1	..	4	1	4	1	..	..	..	..	.. ..
Charlestown Mine	Tin	430	75	80	86	69	20	40	21	49	48	9	14	10	1	17 6
Par Consols	Copper	199	92	32	58	12	10	29	36	42	64	11	14	1	1	14 0
Fowey Consols	Ditto	1030	221	145	94	120	27	188	69	219	108	49	13	3	7	15 2
Tretoil	Ditto	105	25	19	19	18	6	16	5	32	25	8	13	3	1	14 3
Wheal Messer	Ditto	35	3	2	..	..	2	..	2	2	2	..	..	..	1	12 6
Tregollen	Ditto	25	2	3	..	1	..	..	2	4	..	..	..	..	..	.. ..
Restormel	Iron	94	..	10	..	2	..	3	..	9	..	2	15	10	..	.. ..
Totals of the Eastern District.	..	2208	468	353	275	253	66	330	146	472	261	101	..	..	11	.. ..
Tamar	Lead	110	7	19	12	6	2	18	3	22	8	10	13	9	1	17 0
Wheal Friendship	Copper	340	30	101	40	48	15	72	22	134	53	60	14	3	7	14 7
Wheal Betsey	Lead	106	3	27	4	30	5	36	2	53	8	14	13	7	..	.. ..
Birch Tor	Tin	38	1	7	6	3	2	3	1	5	4	3	15	0	1	15 11
Manganese Mines	..	..	..	..	..	..	..	49	42	64	38	23	13	3	..	.. ..
Totals of the Devon District.	..	..	..	..	..	..	..	178	70	278	111	110	..	..	9	.. ..

NOTE.—This table includes the principal mines from which returns have been made in each district, and, no doubt, exhibits the state of the remaining juvenile mining population, in respect of the educational particulars noticed in it, with sufficient accuracy.

Further information as to the usual age of the scholars may be derived from the following table

TABLE 26. Showing the Average Age of the Children, &c. in certain Sunday Schools.

Sunday Schools.	Number of Children.	Average Age of Children.	Oldest.	Youngest.	Of whom are engaged in Mining Labour.
		Years. Months.			
St. Just, Wesleyan Methodist . . .	72	12 0	17	8	53
Trewellard, Ditto . . .	69	13 2	17	9	61
3rd School, locality, &c., not stated .	30	12 6	18	9	22

NOTE—There are only three female names entered on these returns.

235. In the Sunday-schools connected with the Church of England, the children are taught reading in the Bible, the Creed, and Commandments, and the Church Catechism. They are in many instances further taught to understand and apply what they have learned, by means of the Broken Catechism, Gastrell's Faith and Duty, and other hooks generally introduced into these schools throughout the country. Plans analogous in their design, and more or less effectual, are commonly adopted in the schools belonging to dissenting congregations. The answers given by those examined (Evidence, p. 825, 1. 32, 53 ; p. 845, 1. 61 ; p. 852, 1. 13, 26; p. 853, 1. 15, 30, 52, 64; p. 854, 1. 3) would, however, indicate that the teaching in many of these schools, of both the above classes, goes little beyond enabling the scholars to read the Bible or the Testament. Attendance at the place of worship is almost always enforced, and it is in most cases the practice to conduct the children thither. The only instance in which any kind of secular instruction has been stated to be connected with a Sunday-school, is that of St. Day, in which very recently indeed, writing has been taught: (Evidence, p. 846, 1 41). The average age of the children and young persons at these schools may be inferred with sufficient correctness from the table given above (25). The boys commonly discontinue their attendance between 14 and 16 years of age, often earlier; the girls frequently continue to attend at the school, with more or less regularity, till they are some years older, not seldom in the capacity of teachers.

236. The cause most commonly assigned for not going to Sunday-school, as well as for not going to a place of worship, is the want of proper clothes (Evidence, p. 846.1. 664; p. 852, 1. 28 ; p. 853, 1.30 ; p. 854, 1. 23). The poverty of the parents, or more commonly the mother, does, in some cases, prevent the providing of decent clothing; but, more frequently, her disinclination to the appearance of her children in a dress inferior to that of others is the reason their being deprived of these opportunities of improvement (Evidence, p. 837. 1. 47). These schools constitute the only provision for the religious instruction and moral training of the children and young persons employed in these mines. A class, similar to one described (Evidence, p. 849, 1. 11), may, here and there, be formed, for the combining of some further inculcation of religious and moral truth with the general improvement of the understanding.

237. The influence of these schools in promoting religion and morality among the youthful mining population is undoubtedly great, and that influence being very extensively maintained by religious principle in the parents, itself perhaps originally implanted at a Sunday-school, continues its beneficial operation during the business of the week. and very largely over the subsequent life. This is more especially true of the girls. The boys often discontinue their attendance before principles can be firmly engrafted, and before the value of knowledge can be perceived. But this evil must be again adverted to.

238. The total inadequacy of the instruction which the Sunday-school is capable of affording to the fulfilment of the ends of education, is admitted, without any exception, by the parties, almost all of them clergymen or dissenting ministers, who have replied to the query on this subject. A few of their answers may be here given. The question asked was this :

Do you consider the Sunday-schools or other means of instruction at present accessible to children and young persons employed in labour, sufficient to make up for the loss of instruction by early removal from day-schools?

From the Western District the following opinions are given:

By no means. They are doubtless of some avail for the purposes or instruction; but their moral effect is the only one worthy of attention.

By no means, if secular instruction only is considered; and the amount of religious instruction is necessarily very limited, from the few hours weekly devoted to its attainment.

Sufficient In keep up religious *knowledge,* but not other knowledge; not sufficient to keep up moral training.

The answers from the other districts are precisely the same in purport.

239. The secular education of the children in the mining districts is begun at the age of five or six at day-schools, to which a very large majority of them are sent for a longer or shorter period. Some notion of the extent of the provision of schools of this description, and of the degree in which they are frequented, may be gained front the tables already given (23 and 24); but a more complete statement is furnished by Mr. Seymour Tremenheere, in his Special Report on the Educational Condition of these Districts, and is comprised in the following summary:—

TABLE 27.—Common Day Schools.

Parishes.	Common Day Schools for the Elementary Education of the Working Classes.	Number stated as frequenting them.	Average Attendance.			Population in 1831.	Estimated Population in 1840.
			Boys.	Girls.	Total.		
Tywardreath . .	2	69	51	8	59	2,288	4,500
St. Blazey . . .	3	155	120	20	140	2,155	4,500
Redruth	3	136	110	10	120	8,191	8,000
Gwennap and St. Day	10	486	240	215	455	8,521	12,000
Illogan	8	392	190	115	305	6,072	8,000
St. Agnes . . .	6	325	205	80	285	6,642	8,500
St. Just	5	315	170	80	259	4,667	6,000
Total . . .	37	1,878	1,086	528	1,614	38,536	51,500

240. A few of the answers to the queries will serve to convey a just notion of the general character of the instruction afforded. The inquiry into the qualifications of the teachers is couched in these words:—

Describe how far the teachers connected with the schools with which you are acquainted are persons of education, the branches of instruction for which they are qualified, and whether they have been trained as teachers.

A return from St. Just, in the extreme Western District, says

> Not any of them can be considered "persons of education." One or two may be able to elementary Mathematics and algebra ; also a little of land-surveying. None of the teachers have been trained. One or two have spent a few weeks at a model-school.

From St. Ives, in the north-east of the same district, the answer is this:—

> Of the several teachers connected with schools in this district, not more than three I consider qualified for their functions. Some of the remainder are grossly ignorant of elementary education, and have probably resorted to tuition as being easier than manual labour.

From the parish of Illogan, in the Central District, and the most amply supplied with schools, the return, after stating the branches of instruction in the boys schools (noticed in Table 23) to be "reading, writing, arithmetic, English grammar, geography, scripture history, architectural outline. and geometrical figure drawing, singing, and the rudiments of general knowledge," proceeds thus :—

> The teachers of the schools with which I am acquainted have not had the advantage of much education. The master of the boys school, in the village was for some time in the Central National School under Dr. Bell, and afterwards as master in the National School. at St. George's. Hanover-square The teachers in the other schools, though educated in the county, are qualified to teach all I have mentioned.

About Redruth the teachers are said to be

> For the most part persons who have become unable to follow other employments, and who, without any particular qualifications, keep school as the easiest way of obtaining a livelihood.

The account of the teachers in Gwennap is as follows:

> 1. Trevarth, master well educated. 2. Churchtown, master well informed, trained on national system. 3. Churchtown, Mistress educated on British and Foreign system. 4, 5, 6. St. Day, masters capable of leaching reading, writing. and arithmetic well, and grammar, geography, &c.. partially. 7. Mistress capable of teaching on the national system. 8, 9. Mistresses adequate to teach reading, writing. and needlework, plain and ornamental. 10. 11. Carharrack, masters, reading, writing, and arithmetic well, other branches partially.

In the neighbourhood of St. Agnes, in the north-east of this district, the teachers are said to be:

Competent to teach the lower branches of an English education. Not more than one of them is believed to have been trained as a teacher.

From the greatest mining neighbourhood in the Eastern District, a clergyman writes thus:

I think there is only one man in the parish qualified to teach the youth as they ought to be taught, and one schoolmistress, who educates the daughters of the farmers and tradesmen.

241. Mr. Tremenheere's account of the nature of these schools, of the systems on which they are conducted, and of the qualifications of the masters, is as follows:

If the children of the labouring classes now attending these day-schools are few in proportion to the whole number of an age for education, and if the time allowed for it by the parents of those few is short and inadequate, still less are the methods pursued by 27 out of 32 masters and mistresses whose schools I visited, or the books and apparatus used, such as to afford any reasonable hope that instruction of any permanent value could be imparted to more than a small number of their pupils, even if they remained much longer at school than is now the custom. By all these 27 the old system of teaching is pursued, and the books in use are those ordinarily accompanying it. The payments are so low and irregular that good class-books cannot be afforded by the master. Whatever books are used are provided by the parents. Being themselves generally unable to read, the cheapest seem to be considered to have the most merit. A fragment of a Testament, and a small spelling-book, are the ordinary store; for the few more advanced, the Bible, and the elementary books of Pinnock, Murray, and Goldsmith.

The school-rooms were in general found to be light, and clean, and sufficiently provided with desks, but in most instances close and ill ventilated. The terms of payment ranged from 2s to 5s 6d and 7s 6d per quarter. Of the masters, the great majority had either been hurt or had lost their health in the mines, or had been unsuccessful in trade or other occupations; but their qualifications appeared in most instances to be respectable, and their demeanour towards their pupils mild and conciliatory. Nevertheless it must be confessed that they cannot be regarded as possessing, either in their own resources or in the methods they pursue, the capability of effecting, to any desirable extent, the mental and moral improvement of those under their charge. About half belonged to the Established Church, one to the denomination of Independents, one to that of Baptists, the rest to the different sections of the Wesleyans. Nine follow the system of the National Society somewhat modified, one that of the British and Foreign Society. With respect to the use of catechisms in many of the schools conducted on the old system, either the Church or the Wesleyan Catechism was taught, according to the wish of the respective parents.

In the greatest number of these schools comparatively few boys had advanced in arithmetic as far as the rule-of-three. Still fewer had learned anything of grammar, English history, geography, mensuration, or linear drawing; subjects which almost all the masters professed to teach. In 19 schools, boys and girls were instructed together. In eight they had separate schools. In almost all the amount of instruction which seemed to be thought requisite for the girls scarcely passed the boundary of the merest elements.

Mr. T. proceeds to speak in terms of commendation of several schools, particularising the boys' school at Illogan, mentioned above, another at Trevenson, and three girls' schools in the same parish, the British School at St. Agnes, and two private establishments; one at Trevarth, noticed above, and one at Tuckingmill, kept by Mr. Phillips, which is spoken of in the Evidence (No. 64). I must refer to Mr. T's Report for the details of the merits of these schools.

242. From the day when the children of either sex go to work at the mines, they cease to attend day-schools, and, with regard to the vast majority, all teaching, except that at the Sunday-school, is at an end.

243. A certain number of the boys, more in some districts than in others, but in all cases bearing a very small proportion to the rest, attend evening-schools. In many instances these are only open during the winter months. The masters are the same who keep day-schools, and the instruction afforded is of the same quality.

244. The expense of attendance at the day-schools varies from 1d a week to 5s 6d a quarter. The most usual charge at the evening-schools is 3d a week when the boys bring a candle, and 3½d when they do not; the highest charge mentioned in the Evidence (p. 851, 1. 69) is 6d a week, the lowest (p. 843, 1. 54) 1s 6d a quarter. The money is paid by the parents. The only exceptions ascertained are; 1. in North and South Roskear, where 1d a month is levied on each man; each man who works there and has a family is allowed to send one child to the British School at Camborne, without any other charge, and any other

children on the payment of 1d a month more with each. 2. In Wheal Friendship and Wheal Betsey, in Devonshire, the chief part of the expense of a school has been borne by the adventurers. 3. In St. Just, a subscription has been set on foot for the purpose of sending poor children gratuitously to the different schools established in the neighbourhood (Evidence, p. 849, 1. 8). The adventurers at the Charlestown United Mines contemplate the establishment of a school at which instruction will be given to the younger children of their men at very little charge to them.

245. The charge of 1d a week has been mentioned as about the lowest made, but it should be stated that much of the best quality of instruction is provided at no higher rate; the greater part of the expense of the school being, in fact, defrayed from private sources. The National and British Schools are mainly supported here, as elsewhere, by voluntary contributions; and the individual benevolence of one noble lady, in whom the most enlightened charity is hereditary, has given existence, and gives efficiency, to at least 12 schools.

246. It has been already stated that a very large majority of the children in the mining districts had been sent to some day-school for some years before they went to the mines. Still a large number, doubtless, remains of those who from having been left almost friendless, or from the ignorance, poverty, negligence, or selfishness of their friends, have not gone to school at all. Some such have been casually met with in the prosecution of this inquiry. (See Evidence, p. 846, 1. 64; p. 828, 1. 2.)

247. But it is chiefly in taking their children from school at a very early age, that these qualities in the characters and circumstances of the parents are displayed. It has been seen (116, &c.) that a great number of boys are actually at work at the mines before they are 10 years old, and a great number of girls before they are 12, and both these classes have generally been there for a year or more. Many of these, of the girls especially, have also been taken from school some time before they obtained employment at the mines, being made useful at home. The following are a few of the statements of the ages at which the children are usually removed from schools in different districts to go to continuous employment:

Western District; St. Just, and the extreme West, three answers:

1. From 10 to 12 years of years of age. 2. Generally about 10 years of age. 3. Twelve is the average.

North-eastern Division of the same district; St. Ives, &c.:

1. Children are taken from school about the age of 10 years (boys) and 12 years (girls) to work at the mines, &c. *2.* The parents being poor, the children are taken away very early to go to work; frequently at 9 or 10 years old.

From the different parts of the Central District the following statements are given. From the South-west Division (Breage, &c.):

Unfortunately, the children, both boys and girls, are sent to work too early in the tin mines; often as young as years of age. I do not think their employment injurious to their health; though, perhaps, this may be one cause of the general weakness of the miner's constitution, who very seldom live beyond 50; but it is certainly very prejudicial in unfitting the girls for domestic employment, and preventing the boys from acquiring any useful knowledge at school.

Illogan Division:

I regret to say that the children of the labouring classes and miners, from poverty, are removed from school at a very early age, say from 8 to 10 years of age.

Redruth: On the average about 10.

Gwennap: Generally between 9 and 12 years of age.

Kea (Central District, East):

They are commonly removed as soon as their labour can be turned to account, at 12, 11, 10, or even earlier.

Perranarworthal (same neighbourhood): Very many at 8 or 10 years of age; very few remain till 12 or 13.

St. Agnes, &c. (Central District, North-east):

I am informed that the average age of removal from school to go to continuous employment is 10 years.

Eastern District, Tywardreath, &c.:

A great part, of the population consists of miners, the very poor of which class put their children to work at an early age, not being able to pay for their education; those who are in better circumstances keep their children at school till they are 11, 12, or 13 years old; and I think if there were a good school, in which education could be obtained at a cheap rate, the greater part of the miners would send their children till they attained the age of 12 years.

248. Ignorance of the value of education, though said to be less general than it formerly was (Evidence, p. 830, 1. 11), is still very prevalent, as is natural among men, often uneducated themselves, who have got on in the world as well as their neighbours. Where the duty of giving to their children as good an education as they can, is known, the parents cannot be charged, as a class, with neglecting it. Poverty is certainly the general cause that children are taken from school and sent to work at the early age above stated, as it is of their not being sent to school at all. The mere provision of decent clothing is beyond the ability of many a poor widow who has been left with a large family to struggle for subsistence. Her boys are her main stay, and bread must of course be obtained before knowledge. The early and improvident marriages of other parents often involve them in difficulties from which the early exertions of the children can alone extricate them. Here, likewise, poverty is a sufficient explanation of the curtailment of education. It is among the more prosperous miners that ignorance in some cases, and selfishness in others, often both together, lead to the early substitution of mining labour for attendance at the day-school.

249. The same causes operate to prevent the greater number from going to evening-schools, even where they are accessible; but the hours of work, and the time occupied in returning home, make it nearly impossible for the greater part of those employed at the surface to give any portion of the evening to the school, except at times during the winter months. As the boys advance in years, and they are employed under ground, they have more time at their command, though at rather irregular intervals, for availing themselves of these opportunities of instruction, and they do so in many instances; but the disposition to improve themselves, not having been fostered by any education since they attended day-school as young children, is not commonly found, and a large proportion of the parents prefer making use of the earnings of their boys in any other way than in paying for their schooling. There are many praiseworthy exceptions to this selfishness. Some such way be seen in the Evidence (p. 831, 1. 33; p. 851, 1. 64; p. 854, 1. 50), favourably contrasted with the cases of such as, although not in worse circumstances, have chosen to make their boys toil for their profit, even beyond their hours of work at the mines, rather than expend a portion of the earnings of those hours for the cultivation of their mental faculties (Evidence p. 852, 1. 28; p. 854, 1. 42).

250. Some of the results of the instruction actually given are comprised in Table 25 (pp. 798, 799), which exhibits an abstract of the returns made on the tabular forms. From this it would appear that a large majority of the children and young persons of both sexes can read; but this is, with respect to a great number, only true to a very slight extent. Many read so badly that no pleasure or interest can be derived by themselves from reading; and if their attendance at the Sunday-school is discontinued, it is more than probable that the little that has been learnt is lost altogether. This is the case even with boys who have had some advantages, but whose education has not been continued till their minds were expanded sufficiently to give them an interest in what they had been taught (Evidence p. 852, 1. 25; p. 853, 1. 29, 63; p. 854, 1. 3, 22).

251. Some testimonies regarding the evils resulting from this early removal from school are given in reply to the queries.

The question was this: *Does the removal of the children and young persons from school at the ages specified in the last answe, (that of which examples have been given) operate to their injury in after-life? If so, state in what manner.*

The following statements of opinion are from different neighbourhoods:

I think so. *First,* if they work under ground, their health suffers from their youth. *Secondly,* if above ground, the first principles of education have not been sufficiently impressed on their minds to stimulate them to self-tuition, and the little they have learned is

soon forgotten. *Thirdly,* if girls go to work at, that early age, they have no knowledge how to make the commonest garment, &c.

2. It does so operate in many cases. The education is not continued long enough to fix in the mind what may have been acquired; neither is time allowed, in many instances, for learning-anything beyond reading. All this operates to their pecuniary injury, either in leaving them disqualified for certain minor situations, or else in entitling them to lower wages than more instructed persons would obtain.

3. It does so; inasmuch as the little they had learnt. there is very soon forgotten; or, if kept up, is of such an imperfect character, as to open their minds to impressions from evil advisers; and at all events they are not on an equality with those in their own class who have been benefited by a more perfect education.

4. Yes; for it often happens that, at the time they leave, they have not learnt to read with ease, and, not liking the trouble of learning when not compelled, they soon give it up altogether; this of course would operate to their injury both in a temporal and spiritual point of view. Further, they lose the advantage of being able to write.

252. Together with the loss of the knowledge of reading or writing, the more important principles of moral and religious truth will, in all probability, he gradually obliterated from the mind, and, as far as the early education is itself concerned, very little will have been gained. Happily, there are many beneficial influences at work tending to restore those principles at a later period to their due authority; but it can hardly be doubted that the character of that part of the male mining population which is at the period of life between boyhood and manhood, when vicious and disorderly conduct is most prevalent, is attributable in great measure to the want of continuity and sufficient duration in the attendance at school.

253. The amount of positive knowledge usually possessed by the mining boy is not to be measured by the length of time he has been at school, neither is the quickness and capacity of his understanding to be measured by the amount of his positive knowledge. The circumstances of the miner's life tending to sharpen his perception and to strengthen his judgment, have been spoken of before. The children are in some degree under the same influences; in the first place, through the medium of the parent, who will convey to them a reflection of the sharp lines which his hazardous and varied life has impressed on his own mind; and next, by their own experience. Many years prior to his being sent to the mine, the little boy is employed in ways which mimic his future occupations; with a shovel, of a size suited to his strength, he is employed in collecting from the road anything which may serve for dressing; this is placed in a small barrow, which introduces him to the work of wheeling: a step further in the same practice is afterwards made when he is busied in bringing water in a small cask from the well to his home. Other small tools, similar to those used in the mines, are often given him, and he may be seen at work with them, in imitation of what he has noticed when he has been taken there. Soon he makes himself useful in the cultivation of the garden or plot of ground, and in other services. When he goes to work at the mine, free association with others, and the variety of his own occupations, have their usual effect in calling forth his intelligence and forming his character; and, being in no degree oppressed, he has from the first the independent manner and frank expression of opinion general among the adult miners. Circumstances do much for him; what is wanting may be supplied by education.

254. The only connexions existing between schools and any of the mines have been already stated. For the children and young persons actually employed, there is no provision whatever of that nature. In fact, as has been already stated, they come to the mine to work, while there they work constantly, excepting a short interval for dinner, and leave off when their work is done; and then all connexion ends between the employers and employed, except such good offices as private benevolence may suggest. The evening-schools are entirely unconnected with the mines.

255. As there is a very kindly feeling entertained by the leading mine-owners and by their agents generally, towards the juvenile portion of their workpeople, so is there extensively manifested a sincere interest in the advancement of their intellectual, and still more their moral and religious condition. Hitherto it has been exhibited chiefly in the encouragement afforded by them to the schools established for the children prior to their coining to work, and, in a few instances, to evening-schools; but there is no reason to doubt that they would be ready to make some sacrifices for the furtherance of a judicious system, adapted to those actually employed. Some Evidence to that effect may be seen at p. 824, 1. 52; p. 832, 1. 26; p. 833, 1. 42; p. 847, 1. 56; p. 851, 1. 8; and additional testimony is con-

tained in several answers to the queries; one of which may be given as an example; it is from a clergyman in the Eastern District:

I am making [he says] great exertions to establish schools for the instruction of boys and girls, and I am greatly encouraged in my efforts by the willing co-operation of the higher classes, and the almost impatient desire manifested by the lower orders to obtain for their children a more sound, religious, and useful education.

256. Some of the impediments to education, arising from the parents, have been already spoken of, and some examples of the operation of other principles have been referred to. It is but just to state that a great number of the working miners, who are fathers of families, are most strongly impressed with the importance of the benefits conferred by a good education; contemplating higher benefits than the mere advancement of their children in the world; and that they look forward with very great satisfaction to what they have anticipated as one result of the inquiries which have been made; the establishment of good schools which might be attended by their children without preventing their gaining a livelihood at the same time.

257. There is no reason to believe that the severity of labour in the ordinary distribution of time and work at the mines at all incapacitates the children and young persons for receiving instruction at the end of the day. But those who have to walk some miles to their homes, probably the greater number, can do little more than get. their supper and go to bed. Such at least should be the case with the younger children, in order to ensure them eight hours of rest. In the evening-school at Tucking-mill, (Evidence, p. 837,1. 24), though the homes of the boys, and the mines at which they had been working, were both close at hand, it was necessary to postpone the supper till they returned from school, between nine and ten at night. In the winter, when the work closes with the daylight, to allot an hour or two in the evening to school is more easy, and the boys have not complained that they feel the attendance irksome. Evidence to a contrary effect may be found (p. 837, 1. 3, 22; p. 843, 1. 31).

258. The slenderness of the stock of domestic knowledge possessed by the females employed in the mines is attested by all parties. When they come to be wives and mothers, the consequences are very injurious to the husband and children, from the want of management in the outlay of the earnings, from the expense entailed in paying for work which ought to be done at home, and from the coarse and insufficient culinary processes, adopted through ignorance of better methods (Evidence, p. 833, 1. 27; p. 849, 1. 23; p. 850, 1. 63; p. 841, 1. 60). Some inclination to gossiping with the neighbours has been supposed to arise from the habits acquired at the mines; but the wives of the miners cannot be justly charged as a body with neglect of their domestic duties. Their hearts are in their homes, and they are for the most part tender mothers and industrious wives (Evidence, p. 829, 1. 34). Indeed the laborious occupations to which they have been inured make the household duties appear comparatively light.

259. It is necessary to notice in this place a laxity of practice, which still exists to a great extent, though it is generally considered to be less prevalent than it formerly was; the putting off the solemnization of marriage till it is rendered necessary to save the legitimacy of the child, whose birth is known to be at hand. The mischievous effects of this practice are too evident to require illustration; but it is due to the young women concerned, to state that there is every reason to believe that they enter into the engagements which lead to these consequences with entire confidence that they will terminate in marriage; and that the practice itself appears to be derived from a remote period, and to be of connate origin with the similar habits of a related Celtic tribe, the Welch.

260. That confidence is not often misplaced. Desertion by the men is very rare, in proportion to the number of cases in which it would prove destructive to the reputation of the young women. The number of illegitimate children is generally small; and is stated in several places to be much less than it was when compulsory marriage usually followed the discovery of the probability of such being born (Evidence, p. 829,1. 37). There is reason to believe that the desire to escape from the single state, entertained by a rather elderly portion of the females working at the mines, often led to a course which afforded nearly the only prospect of such a desire being realised.

261. There are some differences in regard to the above particulars in different districts, which are stated and illustrated in the Evidence (p. 832, 1. 52; p. 841, 1. 64; p. 849, 1. p.850, 1. 60).

262. Everywhere open prostitution is very rare. In the parish and neighbourhood of Camborne, which embraces a population of 30,000, it was stated by an officer of the Union, intimately acquainted with the subject, that there was not even one individual living in that condition. This fact is rendered still more creditable to the population by the favourable contrast in which it stands to the state of some of the towns at no great distance.

XII. COMPARATIVE CONDITION

263. In the principal mining districts almost all the children of the poorer classes are sent, to the mines when there is any demand for their labour. Comparison can therefore be hardly instituted, on a large scale, except with districts more or less remote. The relative condition of those in the neighbourhood has, however, been kept in view in all the statements in this Report which bear a relative character, and many illustrative particulars in the Evidence collected have been referred to. A brief notice of the condition of the children and young persons employed in domestic and civic occupations, in agriculture, and in the iron-foundries and slate quarries, from which returns have been obtained, shall now be given, under the several heads of inquiry already treated as respects the mining class.

264 (1) Very little, if any, paid employment is found in agriculture for boys under 10 years of age, and it is merely casual till they are 12 or 13. Young girls have only a little occasional work in the field, and do not, till they are 15 or 16, engage in it as their regular occupation. In towns, places are found for a few as servants or errandboys, and apprenticeships are resorted to by the greater part. The girls from 14 upwards obtain employment, as domestic servants, and a great number learn the business of dressmaking at the same age. The ages at the iron-foundries are, under 13, 62; between 13 and 18, 150; those at the slate-quarries, under 13, 21 males and 9 females; between 13 and 18, 34 males and 17 females.

265 (2) The hours for agricultural work are usually about 10 in the day in summer, and daylight in winter. Night-work is unknown, as well as working overtime, except perhaps a little at harvest. Girls employed in dressmaking are here, as in other parts of England, kept at work till 8, sometimes till 10, in the evening, but they seldom begin it before 7 or 8 in the morning. The hours of work in the foundries are from 6 A.M. to 6 P.M., out of which an hour and a half is allowed for meals; a few work at night regularly, and others when there is a particular press of business. At the slate-quarries the hours of work are 10 in the day.

266 (3) An hour is generally allowed for dinner in all departments of husbandry, and another, or at least half an hour, for breakfast; and it large proportion of the young people employed are able to return to their homes to their meals, or to take them in the farm-houses. The some allowance is usual in employments in towns. At the foundries an hour and a half is allowed, and this is also the case at the slate-quarries.

267 (4) It is needless to describe the nature of the agricultural and civic employments just spoken of, which are the same in this as in other parts of the country. The separate reports on the iron-foundries and quarries may be referred to for particulars on this point relating to them.

268 (5) It has been stated that the surface operations in these mines are carried on in well-ventilated places, free from the causes of impurity connected with town habitations. They are in fact, nearly analogous, in regard to aeration, to rural work; the latter is the less sheltered of the two, but likewise the less sedentary. The comparative disadvantages of those who work under ground need not be enumerated. No kind of town occupation is attended by any at all equal ones; but the close situations in which many of its departments are carried on, and the noxious effluvia with which the air is often loaded, render the comparison with the surface work at the mines unfavourable. The quarries and clay-works present no essential points of difference from the more exposed surface work at the mines. The particular condition of the foundries must be looked for in the special report respecting them; but it may be stated generally that they are more injurious in some parts, both from extreme alternation of temperature and from impurity of air, than the places of work at the surface in the mines, but much less so than those under ground.

269 (6) As to the liability to accidents, the disadvantage is altogether on the

side of the mines, though this is nearly confined to the under-ground work. In the foundries several accidents have happened from the machinery, and some from the bursting of boilers, but in no proportion to those in the mines.

270 (7) Holidays are about equally rare in the other lines of employment as in mining. Monday and Tuesday in Whitsun-week are, however, not infrequently allowed as such. But on the whole the engagements being less binding, and for shorter terms, at the mines, the work there is in reality more frequently interrupted than that in most other occupations.

271 (8) The modes of hiring established among the miners having been stated, comparison is easy with those in rural and urban life, which are those usual in other parts of England. At the foundries there are some apprenticeships, but the great majority are hired as daily labourers, as is the case at the quarries.

The wages of mining children and young persons are higher, even at the surface, than those obtained at the same ages in most agricultural and civic employments; the difference probably averages about one-third. Those under ground receive considerably more. In the foundries the weekly wages range from 1s 6d to 9s, the corresponding ages ranging from 10 to 18. In the quarries the earnings of boys are from 2s 6d to 10s per week, between the ages of 8 and 18; and for girls from 2s to 5s.

272 (9) There is nothing to be observed with respect to comparative treatment and care, but that the children and young persons in the mines are more free from arbitrary punishments than those of the other classes, though there is very little ground of complaint among any of them in that particular. The encouragement to labour by means of piece-work is also in favour of those engaged in the mines.

The greater proximity of residence, and more intimate connexion existing between the employers and the employed, would naturally lead to a more beneficial care and influence being exerted by the former in behalf of the latter in most other departments of industry than in mining concerns. Such care and influence cannot, however, be said to be exhibited to any great extent by the farmers, or by tradespeople generally, with regard to those immediately under them. In the foundries more active interest in their welfare has been displayed. The quarries and clay-works are nearly similarly circumstanced with the mines.

273 (10) The statement already given of the *physical condition* of the children and young persons employed in the mines, is almost in all parts relative to that of others in the neighbourhood. A few additional remarks will therefore suffice.

The *external appearance* of those who work at the surface was said to be that of florid health. It is not, perhaps, quite equal to that of those employed in agriculture with respect to robustness, for there are certainly among the former more individuals having those personal characteristics which are considered indicative of predisposition to consumption, and generally there is less coarseness of frame and feature. Compared with any other class of young people, their external appearance is decidedly in their favour. It is distinctly superior to that of those employed in the foundries.

The relation borne by the under-ground boys to those on the surface has been noticed at length, and the observations just made will transfer that relation to other classes as well.

The inferior development of the men to that of the women has been mentioned, and the children of both sexes being alike well grown, it is clear that causes of subsequent. operation produce the difference in the adults. No accurate measurements of the *stature of men following various occupations* have been made; but the foregoing facts would be sufficient to prove, what cursory observation strongly confirms, that the under-ground lads and men are, as a class, inferior in growth to the agricultural class, who are otherwise similarly circumstanced.

The *food* of the other labouring classes spoken of is probably rather less abundant in quantity than that of the mining class, owing to the higher average earnings of the families belonging to the latter. But the preparation of the food is, perhaps, among no other labourers so rude as among the miners; neither is the dinner eaten by any in a manner so habitually comfortless and hurried. Agricultural labourers have the opportunity of obtaining many articles of diet at a cheap rate, especially milk, which is with difficulty procured in the mining districts.

The *clothing* of the children of the peasantry in the West of England is generally decent, but by no means so good as that of the young people connected with the

mines. In the towns the disposition to personal display is prevalent; but the children of the town class are not so well attired as the mining children. Between these last and those employed at the foundries, there is no great difference.

In comparative *cleanliness*, the mining children and young persons stand as high as those of any class; those employed in husbandry are more neglected in this matter; hut nowhere are so many instances of positive filthiness to be met with as in the towns, though the West of England is by no means singularly bad in this particular.

The account already given of the *amount of sickness* among the children and young persons employed in the mines is essentially comparative. The tables of mortality at different ages in the introductory part of this Report may be referred to for some definite information concerning the relative sickness in the above class and in the agricultural and urban !populations: the immunities from, and liabilities to, particular diseases among these last are much the same here as elsewhere. It needs only to be borne in mind that the West of England ranks high for longevity and healthfulness. A particular comparison between the girls employed at the mines and those at a small manufactory, to the advantage of the former, will be found in the Evidence (p. 835, 9).*The amount and kind of sickness in the iron-foundries may be seen in the Special Report concerning them, and a general comparative estimate may be deduced with regard to the young persons from what has been stated of the adults in the present Report.

274. (11.) Sunday-schools are general throughout the rural districts and in the towns in the West of England. Where the population is thin they are more uniformly connected with the church, than where large masses are brought within a small compass. It is probable that the proportion of children attending them to those who do not is greatest in the mining districts.

The day-schools scattered through the country are of a very humble class, and the opportunities of instruction generally enjoyed by the agricultural children are certainly inferior to those within the reach of the mining districts. Where such opportunities exist they may be longer taken advantage of. All the more favourable circumstances concur in the towns,—good schools, facility of access, and a less demand for the labour of the very young. Education is consequently carried further in them, although the majority of the children leave the schools, even there, much too soon to give security that they will hold fast the knowledge and the principles which must be still merely rudimentary in their minds. The national and the British and Foreign systems are those followed by the most considerable and best conducted schools for the poor. The Glasgow method has just been introduced for the first time into the West of England, through a school established at Penzance, under the auspices of the Wesleyan Methodists. There are a few infant-schools. The provision of good evening-schools is very scanty.

By the proprietors of the iron-foundries a good deal of attention has been given to the providing means of instruction for the younger children of their work-people: and in some cases evening-schools for those actually employed. The results as to the ability to read and write are the following:—

Work.	Attend Sunday School.		Read an easy book.		Have written their names.				Total Employed.			
									13 to 18.		Under 13.	
	M.	F.	M.	F.	M.	Aver Age.	F.	Aver. Age.	M.	F.	M.	F.
Hayle Iron Foundry . .	63	..	105	..	48	15·1	..	..	75	..	45	..
Sandys and Co., do. . .	37	..	63	..	41	15·	..	..	56	..	15	..
Perran, do. . .	..	..	22	..	16	14·8	..	..	19	..	2	..
Delabole Slate Quarry .	34	18	35	25	20	14·	6	15·	34	17	21	9
Bickford and Co., Safety Fuse Manufactory.	2	7	2	7	2	11·	5	15·6	..	6	2	1

* Some cases illustrative of the effects on health of other occupations, compared with mining ones, may be found in the Evidence (p. 823, l. 22 ; p. 841, l. 2 ; p. 845, l. 68 ; p. 852, l. 40).

† The average age at which such schools are left (usually for some employment either remunerative or useful to the parents) may be inferred from the following statement respecting the Central National School at Truro, for which I am indebted to the master:—

				Years.	Months.
Of 77 boys who have quitted that school, the average age at admission was .				7	9·97
,,	,,	,,	*time* at school was . .	4	0·44
,,	,,	,,	age at leaving was . .	11	10·41

The replies of several of the magistrates to whom queries were sent, and which have been already given, will further illustrate the comparison of the moral condition of the children and young persons employed in these mines with that of young people in other classes.

275. Some account of the adult mining population has been given in the introduction to this Report. The results of their earlier labours are there displayed. Boys trained to mining do not, to any large extent, desert it for another occupation. When they do so, ill-health is the most frequent cause. Instances of this description, and others occurring in the evidence, have been already referred to. Agriculture is, perhaps, the most usual resort of the miner when he relinquishes his former employment. But the number of boys brought up as miners who do not continue such is comparatively small.

276. The girls likewise, in by far the larger proportion, continue in the same connexion. A very great number of them get married to miners, and that early in life; and many follow milling labour for a long course of years. Change of occupation is however not unusual among them. Some examples of it have been already referred to.

The habits of laborious industry acquired by them at the mines are found serviceable in many employments. For agricultural work they are well adapted, and many are engaged in it; and, though they are not coveted as domestic servants by the upper classes of society, they are found very efficient in that capacity by those to whom a little coarseness of manner and familiarity of address are not a very serious annoyance. Their general character for honesty, sobriety, and steadiness, is unimpeached.

277. The mines in the West of England, not being at all in the vicinity of any works subject to legislative restriction with respect to the employment of children and young persons, no injurious influence has been hitherto exercised upon such works by the exemption of the mines from that restriction.

278. Before concluding this Report, I beg leave to suggest for consideration certain (as it seems to me practicable) measures, which may be remedial to some extent of the evils which have been pointed out under the several heads of the inquiry.

279. (1) No child should be employed *in any way in a mine* under the age of 9 years. The number returned as being under that age is 90, and it is probable that in all the mines there are not above 100; the deprivation therefore of their work or of their wages could not be much felt.

280. No boy should be employed *under ground* before he was 15 years of age. The number returned as working under ground, under 13, is 128; from 13 to 14, 124; and from 14 to 15, 172; altogether 424. Allowing for defective returns, there may, perhaps, be 1000 such boys employed. To prevent their following this employment would produce a serious defalcation from the income of perhaps 500 parents, generally amounting to the difference between the surface and underground pay. But there is, probably, no one practice affecting the young so injurious to them, and ultimately to the mining community at large, as this of exposing boys at a very early age to the pernicious agencies which operate on the under-ground miner. These agencies and their effects have been already dwelt upon (§ 4, 5, 10, &c.).

281. As to the precise age at which it may he least disadvantageous to permit the working of boys under ground, opinions will differ. For the good of the boys, Iii would, I think, be quite soon enough; but many will judge that the limit ought not to go beyond 14, looking chiefly to the necessities of the parents, and in some measure to the expense of labour to the owners.

282. (2) The children at surfacework should not be allowed to work more than 8 hours in the 24, till they were 13 years of age; nor the young persons to work more than 10 hours in the 24, till they were 18. Night-work should not be permitted for any under the age of 15. The boys should not be allowed to remain under ground more than 8 hours in the 24, before they were 18 years of age.

283. (3) Not less than three-quarters of an hour should at any time be allowed for dinner.

284. Under the heads from 4 to 10 inclusive, several beneficial arrangements may be suggested, and recommended to the adoption of the proprietors of mines; but, not being subjects for legislative interposition, need not be here stated in detail. Such are:

285. (4) the substitution of machinery for manual labour in several cases, and a more accurate adjustment, than generally prevails, of the employment to the ages

and strength of the children and young persons.

(5) A more perfect provision of shelter on the surface. The under-ground arrangements have been spoken of in the introduction (107).

(6) Not employing boys under 15 about the engines. Suggestions for the prevention of accidents under ground are given in the introduction.

(7) The promoting the system of task-work; and giving a few half-holidays.

(8) Making general the arrangements adopted at some mines for the payment of wages in such a form as admits of ready division among the individual labourers, and paying the boys and females on the evening preceding the pay-day of the men.

(9) An increased exercise of superintendence and influence over the children and young persons when they are not upon the mines.

(10) The only points of physical condition to which recommendations can apply are those of *food, clothing,* and *cleanliness.* As to the *first,* it would be very desirable that the use of hoggans should be discouraged, and that accommodation should be provided for warming the pasties before they are eaten, which might easily be done in every mine; and that facilities for the procuring some warm drink should be afforded in cold weather. It would also be desirable that water for drinking should be supplied to those under ground. With regard to *clothing,* a change of shoes and stockings at the mine would be very beneficial to the surface labourers, as, at present, if they get wet in coming to they get work, which is very frequently the case, they continue so till they have returned home at night. The promotion of *cleanliness by* the supplying of warm water has been spoken of in respect of those employed under ground. The boys and girls at the surface should likewise be encouraged to wash before their dinner and when they leave work.

285. (11) The *moral condition* of the children and young persons employed in these mines would be improved to a most important extent by their being subject to the influence of a sound education till there was reason to believe that the mind was so far developed that the value of what had been learnt would be appreciated, and self-cultivation might be expected to follow; and, what is of greatly more consequence, till there was something like security that the principles of religion and virtue were so firmly rooted that they could not readily be afterwards forgotten, and that the ordinary temptations to evil courses might be withstood. Much is already done by Sunday-schools, but the clergy and dissenting ministers, who are best acquainted with these schools, have universally stated that they are not at all sufficient, by themselves, for effecting these objects, even with respect to those who habitually attend them, whilst a great number either go very irregularly or not at all. Supposing the existing system of employing children and young persons in these mines to be only interfered with to the extent above suggested, the education of those so employed can be carried on by evening-schools alone. The foundation of these must be the day-schools. To these encouragement and supervision should be extended; and by a small contribution from the miner (such as that at North Roskear),* and from the mine (as in that mine, and in Wheal Friendship, and Wheal Betsey in Devon), combined with some external aid, good and accessible day-schools might be provided for all the children of miners. Their attendance must as far as possible be secured. A good evening-school follows of course upon a good day-school. For the support of this, a small deduction, gradually increasing in amount, should be made from the wages of the children and young persons; and other support should be given, as in the case of the day-school. Provision should be made for sound religious instruction in these schools, and they should be constantly connected with Sunday-schools. The payment by all would, probably, induce the attendance of the greater number; but the influence of the employers must still be called in to secure this result.

286. Some instances of exertion and sacrifice on the part of employers and the public, for the furtherance of the education of the rising generation of miners, have been adduced; but no statement of the moral condition of this class and of the prospects of its improvement can be complete without making some reference to the recent experimental mining-school supported by Sir Charles Lemon. The whole of the documents necessary to the explanation of this experiment have been printed in the Appendix to Mr. Tremenheere's Report, and to them I must refer for its details. Here it will be sufficient to state that, for two seasons: 1. a preliminary course of instruction in elementary mathematics, in the theory and prac-

Some opinions of practical miners as to the feasibility of making arrangements regarding the work-hours, which might admit of attendance at evening-schools, may be seen in the Evidence (p. 824, 1. 52; p. 832, 1. 26; p. 847, 1. 56; p. 851, 1. 8).

tice of land and mine surveying, and in the construction of plans and surveys, and in mechanical drawing, by an able teacher; and subsequently, 2. Scholastic courses of a more advanced character, in mathematics and mechanics, by professors from King's College, London; and in chemistry and mineralogy, by a gentleman eminent for his knowledge in those departments, were provided, at Truro, at a very small charge to the pupils. Almost the whole cost of this educational experiment was borne by Sir Charles Lemon; and when, at the close of the second year's instruction, the test of a public examination had shown that a great amount of practically valuable knowledge, of an order much higher than had been previously within reach of boys destined for mining employments, had been acquired by boys of that class very rapidly, and under many disadvantages, the honourable baronet proposed to endow an institution, which might permanently furnish a complete education of an analogous kind, with a sum of £10,000 or even £20,000, and, besides, to contribute largely to its first foundation, provided the adventurers in mines should testify their approval of the establishment of such an institution by assenting to the levying of a tax of one half-farthing in the pound sterling of value on all metallic minerals raised in Cornwall during twelve years. A majority of the adventurers declared themselves opposed to the imposition of this tax, and, consequently, Sir C. Lemon's contingent offer of endowment was withdrawn, and his experiment terminated. That experiment was, however, enough to prove, *first,* that boys taken from the class of under-ground miners might be readily furnished, by scholastic instruction, with the means of improving their own condition, and facilitating the processes of mining; *secondly,* that there is no reason to apprehend, as was apprehended, that such instruction would give rise to a distaste for under-ground employment; for the pupils have returned, even with zest, to that kind of labour; and, *thirdly,* nothing, except, indeed, the non-acceptance of Sir C. Lemon's munificent offer, could more clearly prove than the apathy with which that experiment was received, that the need of such instruction is great. The time will no doubt arrive when the importance of placing the practical miner on the vantage-ground of science at the outset of his career, instead of leaving it to chance whether he gropes his way thither towards the end of it, will be fully perceived, as will be the great outlet for Cornish talent, which would be opened by the capability of supplying to the mines of the world agents so instructed as they can be nowhere but in Cornwall; but the power to perceive these things must first be given by the supply of elementary education.

287. Under arrangements such as those above suggested, the circumstances of these young people would be particularly favourable for the attainment of the best fruits of education. An excellent industrial course is already provided by the processes of mining employment, combined with those in which the parents call for the assistance of their children; and the amount of labour is not even now found to incapacitate for the reception of more direct instruction. At a later period, the miner has a good deal of time at his disposal, and as the nature of his employment affords him the means of turning his knowledge to account, these leisure hours may be always profitably occupied, if the elementary instruments by which knowledge is applied to practical purposes have been placed in his hands. Almost every miner has, moreover, the opportunity, at some time or other, of materially improving his condition; and if his character has been established on the firm basis of religion, he will avail himself of that opportunity to obviate the risk of being compelled to have resort to credit, and will gradually accumulate a sufficiency to enable him to marry with prudence, and to bring up his children without being forced to support himself or them by premature demands upon their physical powers. He will be also able to find, among the females educated in such schools, a partner who will second his efforts by that acquaintance with the principles and practice of domestic economy which is more essential to the welfare of the poor than of the rich man's household; and much more by a capacity for making use of those occasions for implanting the seeds of virtue in the hearts of his children, which a mother can alone enjoy.

288. The working of these mines, of the deeper ones in particular, can hardly, perhaps, in the nature of things be rendered altogether free from consequences directly or indirectly pernicious to the labourer; but the robust and healthy condition of the majority of mine agents who have been subject for many years to a great part of those noxious influences, and the sound state of many miners who have attained middle age, and continue at their posts under ground, having only differed from others inasmuch as greater intelligence and prudence have secured

them greater comfort, and better principles have secured them from excesses; these things lead me to believe that the evils which now affect the miner may for the most part be hereafter obviated, if, together with the removal, as far as shall be found possible, of those injurious agencies which have been pointed out in this Report, effectual measures shall be taken for the intellectual, moral, and religious education of this class of the population of the West of England.

I have the honour to be, Gentlemen,
Your very obedient servant,
CHARLES BARHAM,
Sub-Commissioner.

APPENDIX (A)

4, *Clarence-street, Penzance*
May 10th, 1841.

SIR,

ONE of the most fatiguing circumstances to which our miners are exposed is the elevated temperature which prevails in deep mines. I have personally inspected every part of about 200 mines in Cornwall and Devon, and have made many hundreds of observations on the temperature of the streams of water which flow into them immediately as they issue from the unbroken rock. The following is a general summary of my results:

	Temperature.	
Depth, in Fathoms, of Place of Observation.	In Slate. Degs. (Fahr.)	In Granite. Degs. (Fahr.)
Surface to 50	57·0	51·6
50 " 100	61·3	55·8
100 " 150	68·0	65·5
150 " 200	72·0	••
200 and upwards	85·6	81·3

The fatigue of climbing 200 fathoms is very great, and when this is done in an atmosphere of 80 degrees the exertion is of course considerably greater. But added to this, one party, (of the three gangs who relieve each other at every eight hours) have to leave their work at 10 o'clock at night; and I have known instances where labourers, who had to remain in a temperature of 96 degrees whilst at their employ, at this late hour of the night had to walk three miles to their homes. Some of these were too poor to be well clad; and after so frightful a transition of temperature, and so long a walk against a fierce and biting wind, they have often reached a home without a fire, and had to creep to bed with no more nourishing food and drink than barley-bread or potatoes with cold water.

The rewards which private benevolence and the exertions of the Polytechnic Society have offered for the production of a safe machine applicable to the general features of Cornish mining economy, have brought into notice several ingenious pieces of mechanism, for the purpose of lowering the labourers to their work, and raising them to the surface after their day's employment is over.

That none of these machines have been introduced to practice is a sufficient proof that the project, or the modes of effecting it, have not met the approbation of practical men. You will perhaps allow me to glance at an objection or two which I think it may be found very difficult, if not impossible, to obviate.

All these machines require a shaft to be set apart for their use; and a shaft of 200 or 250 fathoms deep, in the centre of the workings, is in the first place an item of enormous cost, and in the second the shafts in such situations are required every moment both of day and night for the purposes of the pumping-engines, or for drawing the ore and rubbish to the surface. Of course, if the shaft through which the workmen are drawn to the surface is not in the vicinity of the *workings,* its utility will be but small. Again, the masses or *bunches* of ore in our *lodes* (veins) have almost invariably a dip or inclination, which is in most cases from the nearest mass of granite. From this reason the chief portions of the *deep* workings are seldom *immediately beneath* the shallow ones; and thus whilst the workings increase in depth, they almost always have a horizontal progression.

Thus the shafts which at the commencement of a mine serve for the working of the deeper parts, are almost abandoned as the mine gets deeper. The steam-engines for pumping water thus often require occasional removal; and the same remark applies to any other machinery fixed in the shafts, and of course bears on the subject of the raising and lowering of the labourers.

I have little doubt but that the mode in universal use in the coal-mines, of lowering and drawing up the workmen in a basket, box, or other vehicle attached to a rope or chain, and that wound by a steam-engine, might be as beneficially employed in Cornwall as it is elsewhere; and if it was only adopted for 100 or 150 fathoms from the surface, it would produce a saving in the animal power, which would he most advantageous as well to the adventurer (mine-owner) as to the workman.

I dare say some difficulty would be found in inducing the men to trust themselves to a mode of conveyance which, if less laborious than that of ladders, is surely also less secure; but I think no more objection would be stated to this mode than to any of the various ingenious contrivances which have so often enriched the exhibitions of the Polytechnic Society.

There is, however, an improvement in the dimensions and adjustments of the ladders, which has been for some years in use at *Tresavean Mine,* and which I have been the humble means of having introduced at *Wheal Mary*, in Lelant, which I think has not been generally known, although I have described it in the newspapers. This consists in simply diminishing the distance between the staves, bars, or rungs of the ladders to 10 inches instead of the usual space of a foot; and in fixing the ladders at an uniform inclination of about 70 degrees. This diminished rise of the step, and an inclination which allows the climber to stand nearly erect whilst moving in the ladder, has been found so efficacious in *Tresavean,* that aged men who had previously abandoned working in the deeper parts have now been enabled to return to labour in the very bottom; and although there is another very excellent series of ladders of the ordinary description in *Wheal Mary,* the workmen have entirely abandoned it for the new one.

I venture most unhesitatingly to recommend this plan for universal adoption, for I am sure, from my own experience, that it relieves the operator from at least one-third (and I may say even a larger portion) of the labour. I have little doubt but that its general introduction would effectually answer the benevolent objects of the parties by whom attention to the subject was first drawn.

There is no doubt but that rapid travelling in the ladders is very injurious, and in this respect there is considerable difference in various districts. In the central districts of Cornwall, viz., at Gwennap, Redruth, Camborne, &c., where the mines have long been very deep, the workmen climb much faster than they do either at St. Just, in the vicinity of St. Ives, or in the eastern part of Cornwall, where there are but few deep mines. I have little doubt but that this difference will be found to affect the vital statistics of these respective districts.

There are some other topics which I might enlarge on, but as some of them are of general occurrence, and others may be as readily met with on the surface as under ground; you have probably found them yourself, or heard of them front other parties. I have therefore confined myself chiefly to matters which have not been so fully observed by others, or which I imagined the agents of mines, confined to their own localities, but not so fully observed as I have had opportunity of doing from so long and general an acquaintance as I have enjoyed with every mining district in the West of England. In Ireland there are some striking peculiarities among the mining population; but, as your own inquiries do not extend to that country, I do not trouble you with them.

I wish these things had been better worthy of your notice, and that my full employment had given me time to shorten and improve the arrangement of them.

I have, &c.,
W. J. Henwood

P.S. A most important and invaluable suggestion was made by Dr. Carlyon to the Polytechnic Society of Cornwall some years since, and which cannot be too generally known. It was that each labourer, on his ascent front the mine, and before his return home, should he supplied with a small quantity of coffee, soup, or other warm and nutritious fluid to sustain them under the exhaustion from labour, and to keep out the cold. Owing to the liberality of the Right Honourable the Lady Basset this excellent plan has been tried at Dolcoath Mine with perfect success, and to the great delight of the grateful miners. It is greatly to be desired that this wise suggestion and this enlightened benevolence would lead to its general adoption.

APPENDIX (B)

WHEAL BUDNICK CLUB

The appropriation of the sums contributed by the Budnick miners, viz. 12d per man per month, and 6d per boy per month, is as follows: for the club, a moiety and for the surgeon, the other moiety.

1. Every man wounded or injured under or above ground while actually working in or about the mine, shall, upon his producing a certificate from the surgeon purporting that in consequence of such wound or injury he is unable to work, receive 12d per day during the period of such inability.

2. Every boy, under a similar circumstance, and upon the production of a like certificate, shall be entitled to 6d. per day.

3. But in case the club-fund should at any time be inadequate to afford those rates of relief, a proportionate reduction will be made therefrom.

4. Every person who shall be proved to be drunk or intoxicated with ardent spirit or malt liquor, or who shall go into any public-house or beer-shop at any time whilst he shall be a claimant on the above unless satisfactory testimony can be produced that extreme expediency required it, shall be totally disqualified from participating in or entitled to receive any relief there from.

Wheal Budnick, 24th June, 1839.

APPENDIX (C)

Sir,

I have been making inquiry respecting the manner in which the miner lays out his monthly gettings, and cannot find an instance to bear me out in stating that there is a rule or scale of guidance to be found among them; this habit of improvidence is induced from the irregularity of their gettings, tile amount being often below what is sufficient whereon to subsist: on which occasions they dive as far into their supplier's credit as they are *allowed* to; and he knowing the average of their gettings, does not of course allow them credit for an ample quantity. I have conversed with a person who has dealt largely with the miners in St. Agnes, Illogan, Camborne, Redruth, and Gwennap, who knows their habits, and what they have been during 20 years, and who could probably refer to accounts with them in those parishes 50 years ago: he is an intelligent man, and says that the miner's pay is not sufficient; that he eats barley because he cannot pay for wheat; that he gets in debt as far as he can, presuming on the success of his children to help him out 10 or 20 years hence; after this long forbearance, the standby, as he is styled, finds very few children enabled or disposed to liquidate their parents' debt. The same person makes the assertion that he cannot look around and one family of miners without a fag end of debt either to him or to his predecessors in the business; with the exception of those who have the help of an acre or two of land, a house, &c., as a beginning; such by care and industry are the only ones that maintain their standing. I have no doubt but lie would show you hundreds of accounts of arrears, varying from £1 to £20 and upwards, that he regards as loss; in a word, his steadiest dealers of the order in question have an account with this feature. So much for the miller, and I find it to be no better with the shopkeeper; the itinerant drapers and others have found out a way to deal with the working class which 1 think must work well. For instance, a garment may be accepted on credit, the payment being made at say 6d, 1s, or upwards per month. In this way some get into household furniture also, the tradesman being content to await the small monthly payments. It seems to be impracticable for some of them to lay by a sum for casual purposes, but being answerable for goods already had, they anticipate the punctual visit of the teaman or clothier, and by an easy compulsion put the idle pence aside to complete the payment, which would otherwise be unwarily squandered. It may be said that this enables them to obtain dress beyond their means of payment, but I think the sellers are too well acquainted with the finances of their customers, and the danger of offering expensive articles.

[Here follows the list of articles of furniture with their prices given in the body of the Report.]

The miners are much in the habit of making their utensils about the house, and generally mend their own shoes. The borrowing and lending of culinary utensils is very prevalent; this is an accommodation to the indigent among them.

I am, &c.,

John Phillips.

Tuckingmill, 28th June, 1841.

APPENDIX (D)

The following cases of injuries received by miners in the Fowey Consols, and treated by M**r.** Pace**,** the principal surgeon of that mine, within the last two years, have been obligingly sent me by that gentleman. They will exhibit the nature of some of the severer casualties, not necessarily fatal, frequently occurring in the mines of the West of England, as well as that restorative power of the miner's constitution which often seconds, to an extent which could not be hoped for in hospital practice, the skilful and assiduous efforts of the surgeon, whose attendance is provided at so low a charge to the individual. Some professional details given by Mr. Pace have been omitted here.

No. 1. *Stephen Sylvester,* aged 16:

Fell a distance of eight fathoms under-ground, and his head came in contact with a sharp stone. After being removed to his mother's I saw him immediately, and upon examination, found that the *os frontis* was fractured, and several pieces of it were driven into the brain, leaving a triangular space with an oblique serrated edge. [Mr. Pace urged the necessity of operating, and after some difficulty on the part of the boy], operated upon him about six hours after the accident, and removed several pieces of bone which were imbedded in the brain, and also about a table spoonful of the brain itself, which protruded after the first incision was made. I also removed the serrated portion of bone and elevated the depressed, a suture was inserted and the wound dressed with adhesive plaister; the head was then raised upon and supported by pillows, and ordered to be kept constantly wet with a refrigerant lotion. The boy was also bled freely from the arm, and calomel &c., given to him. [Very strict antiphlogistlc treatment, and attention to quietude, &c., followed.] The mother and relations strictly

adhered to my instructions, and much praise is due to them for it; and the boy attended divine service at St. Blayey [sic] church in less than a month perfectly well, and has remained so ever since; he is at present working at the mine.

No. 2. *Joseph Jeffery,* miner, aged 17:
Had a blow on the right parietal bone by a piece of timber under ground, and also a slight laceration of the scalp, caused by a nail in the timber. The lad walked home from the mine very quickly, and came into my surgery about six o'clock on the Wednesday evening. He went on pretty well with simple treatment till Saturday, when he complained of uneasiness in the left arm, and he thought it might have been struck by the timber; there was no want of power in the limb, or numbness. I ordered it to be well rubbed with a camphorated liniment, and applied a blister nuchae the next day (Sunday); when I saw him, the uneasiness had rather increased in the arm, but it was not powerless, not much pain in the head, no rigors, nausea, or sickness; but there was an increased action, with a peculiar jerk of the pulse, and an impression on my mind that some untoward symptoms were threatening him. I persuaded the mother to allow me to bleed him, which I did, and repeated the calomel, &c. Early the next morning I was sent for in haste and told that the lad was then in a strong convulsion fit. I went in a few minutes. and found him then in a very strong one; he was perfectly sensible, but complained of intense pain in the head, and he had a violent attack of subsultus of the left arm; I bled him again copiously from the arm, had leeches applied to the forehead and temples; the wound was quite healed - no tumidity about it - but I re-opened it with a lancet, and had the head shaved and kept constantly wet with a cold refrigerant lotion, had an enema administered, and after that cataplasms to the feet, and gave him calomel very freely, &c. The convulsions continued at intervals of two to three hours for three successive days, during which time there was no absence of recollection. I saw him on an average every six hours, night and day, for several days. Bleeding him frequently from the arm according to the state of the pulse, the head was blistered, and the leeches several times re-applied to the forehead and temples, the calomel, &c., continued, perfect quietude kept, and no light admitted into his room. The convulsions became weaker, the subsultus continued occasionally in the arm, but decreasing in violence, and in a few days both had left; but leaving the left side perfectly paralytic. By care and attention the lad's health gradually improved; a light nutritious diet was allowed him, and in a few weeks he recovered the use of his left side, and returned to his labour perfectly well.

No. 3. *James King,* aged 20, miner:
Was brought into my house in his way home from the mine, having met with an accident from a fall under ground. On examining the right arm I ascertained there was an awkward oblique fracture of the humerus, close to the neck of the bone; there was not much swelling or tension. Considerable swelling and tension came on next day, with much constitutional disturbance, requiring strict antiphlogistic treatment. The man was of a plethoric habit, but of a feeble constitution; frequent doses of calomel, &c., were given to him, and the antiphlogistic plan strictly adhered to. In about a fortnight all inflammatory symptoms had subsided, and then the splints, &c., were re-applied as before. The young man was very much reduced; but the case did extremely well, and in a few weeks he returned to his labour.

No. 4. *James Reed,* aged 22, miner:
Was struck by a large stone on the left leg whilst at work under ground. Immediately after he was taken to his father's house, with whom he quartered, I saw him, and on examination found the tibia and fibula were both fractured, the tibia obliquely; there was also a long incised wound, from which there had been and was considerable haemorrhage. Ecchymosis had taken place to a very great extent, and the limb had evidently suffered very much from the compression. [Judicious surgical and medical treatment was adopted.] The haemorrhage had entirely ceased within the first twenty-four hours; but it proved to be most beneficial to the limb and system, inasmuch as it had relieved the one from swelling and tension, and prevented inflammatory action in the other. When the swelling and tension had subsided, which it had in a few days, I had the young man removed into another room, and I there completely reduced the fractures, and placed the limb in a fracture-cradle (the poultices were discontinued, and simple dressings applied to the wound). He was exceedingly reduced by the necessary confinement; but by the aid of tonics, and a generous diet, he was able to work in about six months from the time of the accident.

No. 5. *Joseph Gilbard*, aged 23, miner:
Had a severe blow on the back part of the head by a stone, producing concussion of the brain. I saw him immediately after he had been taken home by his comrades, who told me that he had lost about three quarts of blood from his ears; it was evident he had lost a considerable quantity, as his clothes were completely saturated with it; he was excessively cold, perfectly sensible then, but totally insensible when his comrades picked him up after the blow; he could not bear the least light; complained of intense pain in the head; there was no wound. I gave him some warm tea, which his stomach immediately rejected; and then had him removed to bed, bled him from the arm, and gave him more warm tea, which was immediately thrown up. I ordered his hair to be cut short, and to take five grains of calomel every two hours, and the head to be kept constantly wet with a refrigerant lotion. I wished to take some blood front the nape of the neck by cupping, but he objected, and leeches and blisters

were applied behind each ear, and about the nape of the neck. I directed that nothing should be given to him except tea, water, or gruel, and either of those in very small quantities. The pain continued in the head for about a fortnight, during which time I visited him three and four times a-day, and bled him very often, according to the state of the pulse; the calomel was continued in smaller doses in combination with occasional saline purgatives; the mouth was much affected by the calomel, and the man greatly reduced. As soon as he could bear it, a light nourishing diet was allowed him, and in a few weeks he returned to his labour quite well.

No. 6. *Richard Hellery,* aged 30, miner:
Fell down a shaft across a piece of timber, and was taken up apparently lifeless. I was sent for, and directed his comrades to remove him to his house as quickly as possible. (In all mine accidents it is truly admirable to witness the care and attention paid by the miners to their wounded comrades; if there have been any existing animosity, the offended party is the foremost to render assistance.) As soon as he was carried home I gave directions that he should he put into a warm bed; and when I saw him again, which was a few minutes after they had put him into bed, he was perfectly insensible, and his respiration exceedingly difficult. I gave him a few tea-spoonsful of warm tea with a little brandy it, and had the abdomen, chest, and feet fomented with hot water, and remained with him until reaction took place. On examining him there were several deep cuts and bruises about the body and head; but the principal injury appeared to me to be in the lumbar vertebrae. I dressed his wounds, and bled him from the arm, and cupped him exactly over the injured part of the back, and extracted a good portion of blood; [other appropriate measures were employed.] I visited him three and four times a day during a fortnight, and he was insensible nearly the whole of that time, and his lower extremities were quite paralytic. [Active antiphlogistic means were used, and he] gradually recovered his recollection; I then allowed him a generous diet, and he has been, and is now, employed at the mine in good health, but with a partial paralysis of one leg.

No. 7. *William Davey*, aged 42, miner:
Was at work at the mine, and in tipping the waggon over, the handle broke, and he fell with great force over the tram-road, a distance of about twelve feet, upon his head. He was taken up immediately partially stunned, but sensible to all that was passing, without the power of articulation. I saw him very soon after; he had a long jaggy wound on the top of the head, from which there was scarcely any haemorrhage; he complained of much thirst. I gave him some warm water to drink, which he did with great difficulty; he could then speak, but indistinctly. I asked him if he could discern me or any object about him; he replied in the negative. I had him removed to his home, and bled him from the arm about two hours after the accident, gave him calomel, &c. The difficult deglutition had then very much increased, and he complained of pain and uneasiness in the head, and about the nape of the neck and throat. There was such extreme sensibility over the cervical vertebrae, that he could not bear the slightest touch; he had not the least power to move his head in any direction. This continued for several days, and also the difficulty of deglutition and imperfect vision; he was occasionally delirious, and his speech was rather faltering; there was no concussion of the brain, but evidently cerebral disturbance, with inflammation of a portion of the theca of the cervical vertebrae. It was one of those cases which required watching, and I saw him three and four times a day for some days, bled him from the arm several times, and had leeches applied to the injured part of the vertebrae, behind the ears, and about the neck and throat; I also cupped him, and applied several blisters, and put the system under mercurial influence. He recovered slowly; and in about ten weeks from the time of the accident, he returned to his labour perfectly well.

No. 8. *Jacob Waters*, miner, aged 46:
Had a fall under ground with a piece of timber. I saw him immediately after his comrades had carried him home, and had him undressed and put into bed. On examination I found a very severe compound fracture of the tibia and fibula of the right leg, the tibia protruding several inches, with such extensive laceration of the muscles of the limb, that it might have been twisted off very easily. After cleaning the wound, (I beg to observe here, that the wounds of miners received under ground require the greatest care and attention on the part of the surgeon to remove if possible every particle of dirt or mundic from them; for in some peculiar habits, if this be not particularly attended to, very severe constitutional derangement is the consequences, attended with considerable danger to the patient,) and gentle extension being made, I reduced the fractures and placed the lacerated portions of the muscles, &c., in their natural position, as far as the case would permit of. [Various judicious measures adapted to the varying circumstances of the patient are here detailed.] The man suffered great pain and uneasiness in the limb, and in a few weeks I removed a partially exfoliated portion of the tibia. I was frequently urged by the man himself to amputate the limb, but declined doing so, as I always have done, and shall do, if I see a chance of saving a limb without risking the patient's life. Batley's Sedative Solution was frequently given, and the man's strength kept up by a generous and nutritious diet, aided by quinine, porter, wine, &c. This case was to me a most anxious one; one which required a vast deal of watching, care, and attendance on my part, and great patience on the part of the patient himself; but it gives me great pleasure to be able to say, that in about eighteen months from the period of the accident the man was capable of renewing his labour under ground, with a perfectly straight and strong limb.

No. 9. *James Baker,* aged 56:
Of very spare habit, had his left thigh fractured in four places by a very large stone. The whole system as well as the limb suffered greatly from the concussion. I was sent for soon after the accident occurred, reduced the fractures, and placed the limb in a doubly-inclined fracture-cradle. I ordered a saline draught to be given with a sedative every four hours; the man went on very well for a few days, when he was suddenly seized with severe rigors. Inflammatory fever followed; and the persons in attendance, in rendering him the necessary assistance, displaced the fractures, which were obliged to be reduced a second and a third time: after which the man's powers seemed to be entirely giving way; but by great care and watching, the case ultimately did extremely well, although it was a very anxious and troublesome one. The man was removed to his relations, a distance of fifty miles, in a few weeks; and I have since heard that he walks about with the aid of only a stick, and scarcely any difference in the length of the limbs.

APPENDIX (E)

Answers were received from several medical men professionally connected with mines in the different districts, in reply to written queries addressed to them. The queries may be first stated. They were these:

I. Have you found that, in the mines with which you have been professionally connected, accidents have happened to boys under ground, owing to the weakness and carelessness natural to the early age at which they are employed?
2. Will you state the particulars of any serious mine accidents within the last two years, where the parties injured have been under your care?
3. If you have directed your attention to the comparative health and longevity of those who have commenced under-ground labour at a very early age (as under 12), and those who have not worked under ground under the age of 14, be so good as to state the conclusions at which you have arrived?
4. What are the general results of your experience as to the health of the surface and the under-ground labourers in the mines in your neighbourhood?

Mr. T. P. Gurney, resident at Marazion, has favoured me with the following answer:

1. I have not particularly observed that accidents have occurred in consequence of carelessness natural to early age. I have, however, frequently perceived that the soft parts connecting the different joints have given way, and children have materially suffered in consequence.
2. I have not had many serious mine accidents within the last two years; the ones I have seen have arisen from the explosion of a rock, where the face and eyes have been injured, with almost the entire loss of one or both eyes; also the hand was seriously injured so as to be doubtful if amputation of a part ought not to be performed; it was not however done, and the cure has been most complete. I have seen three deaths, two from falls, where there has been fracture in one, concussion in the second, and injury to the bladder to the third.
3. I do not think that boys go under ground so early as 12 nor have I observed that they suffer in very early life; from 35 to 50 they break up from disease of the viscera, both lungs and liver.
4. They frequently change, when labour is scarce; after having worked under ground, they for a time work on the surface, and then again return to their former employ. Those who never go under ground are just on a par with agricultural labourers. In Wheal Vor I find the females suffer from amenorrhoea mid dysmenorrhoea.

I am indebted for the next to Mr. George Vawdrey, practising at Hayle:

1. I cannot say that I have - there being in most of the mines that come under my observation precautionary rules, the infringement of which is visited by punishment in the shape of a fine levied on the juvenile offender. I have, however, witnessed, in two or three instances, the lamentable effects of young men being too precipitate in their anxiety to examine the charge after having ignited the fuse, when from some cause or other the explosion has not taken place so readily as they anticipated; the consequences were very serious: in one case a total loss of sight, beside various other mutilations; whereas, by invariably allowing a certain time to elapse between igniting the fuse and going to inspect the hole, these accidents, which are by no means of very rare occurrence, might be avoided.
2. In Wheal Virgin Mine a youth fell 16 fathoms, causing fracture of both thighs and concussion of the brain; death took place in about 12 hours. In the same mine another individual received a blow on the loins by the fall of a large stone on the part, occasioning severe injury to the kidneys, which ended in death at the expiration of four days. Three or four

simple fractures of the leg have also occurred during the last two years. In North Wheal Alfred Mine a man fell nine fathoms; besides several wounds in different parts of his body, he suffered principally from a severe contusion on the loins, producing partial paralysis of the bladder; recovery took place after many weeks. In the same mine a stone fell 30 fathoms perpendicularly on the head of a man working in the engine-shaft, causing extensive fracture of the skull; death ensued in six hours. In Tin Croft Consols a lad fell 40 fathoms, and was of course killed instantaneously.
3 and 4. Having been but recently professionally engaged in the mines, my observation had not induced me to make any estimate of the comparative health and longevity of those employed at the surface and the under-ground labourers.

Mr. S. P. Arthur, who is extensively engaged in attendance on the labourers in the deepest mines in Cornwall, in the parish of Gwennap, has kindly furnished the succeeding statement:
1. The majority of accidents that happen to boys under ground arise from carelessness and weakness, natural to the early age at which they are employed.
2. I have attended many serious mine accidents within the last two years, but am unable to give any particular description of the different cases. The most frequent are injuries of the head from falling out of the ladders.
3. I have not paid much attention to the comparative health and longevity of those who have commenced work under ground at a very early age, and those at riper periods, but I have no doubt that the practice (which prevails to a great extent in this neighbourhood) of employing boys of a tender age to work under ground is very injurious to their future health and happiness.
4. I find that the surface labourers are a healthy, strong, and hardy race, and live the usual period allotted to man, whereas the under-ground labourers have altogether a sickly unhealthy appearance, and seldom reach the age of 50 or 60.

From the Eastern District, Messrs. Robinson and Vawdrey, of St. Austle, have answered the queries thus:
1. No, not any.
2. No serious accidents have occurred.
3. Most of the boys attended by us have commenced under-ground operations at 16.
4. Those who work on the surface are more healthy than those who work under ground; the latter are more liable to pleuritis, pneumonia, asthma, and phthisis.

Mr. Pace, principal surgeon to the Fowey Consols, has obligingly transmitted the following remarks:

In reply to Query No. 1: it seldom occurs that accidents happen to boys who work under ground, for this reason, that the miners have very strict injunctions from our agents and captains to take the greatest care of them, and they are not allowed to descend or ascend without being preceded by a miner, until they have been at work for a considerable period, and are considered capable to take care of themselves.
In reply to Query No. 2: I have given the particulars of several cases, and regret that an accidental destruction of some papers, amongst which were notes of many other cases, will prohibit my giving you the details of them.
In reply to Queries No. 3 and 4: my observations have led me to conclude that if a miner were to take care of his health and have timely medical assistance, and adhere to the advice given to him that his age would equal that of any other labourer; but a miner's mode of living is bad, and I believe many a good constitution is thrown away by bad management. For instance, miners at a very early age (14 or 16) contract a habit of smoking tobacco, and unfortunately it increases to such an excess, that I am inclined to believe that more constitutions are ruined by that and drinking, than by their labour. I have felt much interested in the welfare of the miners, and having had such a multitude of them under my charge for several years, I have taken many and frequent opportunities of counselling them on the management of their health; but in very many instances I am sorry to say that my advice has been mocked at, and my time wasted; this I attribute to their being generally uninstructed, nevertheless it has not, nor will it prevent me from doing what I deem incumbent on me. When once the habit of smoking is contracted, I have before observed that it increases rapidly. The moment a miner wakes in the morning, the first thing he does is to strike a light and smoke his pipe; then be makes his fire and boils the water for his breakfast, by that time his pipe is finished; and as soon as he has taken his breakfast he fills another pipe and smokes that on his way to the mine; as soon as he gets underground perhaps he smokes another, and so he continues to smoke all day; if he happen to wake during the night he will have a pipe, and at the end of the week it is not unusual for him to have smoked a quarter of a pound of tobacco or more; the consequence is, that it takes away his appetite, after a time destroys the digestive powers, tremors follow, and the miner becomes blanched and emaciated. Next, to his mode of living: a miner rarely eats anything but cold potato pasties, with perhaps a small quantity of

salted pork baked in them; and frequently the pasty he has taken to the mine with him to eat in the course of the day will be taken back with him at night untouched, because he has no appetite to eat it; and so, literally speaking, time after time, the system has no nourishment afforded it, and is still continued to be drained by a constant discharge of saliva, caused by the excessive use of tobacco. I have mentioned before, with regard to drinking, a miner after working hard will frequently, in his way home, go into the first beer-shop he comes to and drink a pint of beer or porter, because he will tell you he feels weak, and it will give him an appetite for his supper; after he has had one pint he will have a second and a third, and I have known when two or three of them have met together that they have drank two or three gallons; this frequently happens on the day they receive their pay. Others again I have known to drink half a pint of brandy and eat half a pound of cheese at one time: all these inconsistent excesses must of course tend to weaken and disorganise the system. I have often cautioned the miners against a very dangerous custom, and advised them to discontinue it; and that is as soon as they arrive at the surface, after working perhaps nearly naked, they will plunge their feet immediately into the cold waters in the leets or drains, and frequently wash the breast with it whilst the perspiration is running down it in globules. Again, miners will climb too rapidly, there is no necessity for it, they are not obliged to be on the surface at a certain time or moment, or to descend within a given time, so long as they work the number of hours allotted to each corps, therefore the mischief that it produces is brought on voluntarily; they are equally as incautious under ground, for they will sit upon cold stones and stand in the cross-cuts after working hard, and whilst in a copious perspiration, frequently will drink a gallon of cold water in less than six hours. When they meet with foul air, and feel it to affect them, they are as negligent as ever, and delay applying for medical treatment until they can work no longer. The symptoms they mostly complain of after working in it, is a general lassitude, with pain and aching about the knees, calves of the legs, pain in the head, tickling cough, load on the chest, dim sight, fluttering about and palpitation of the heart, confined bowels, and a black sooty expectoration, and in some habits where the system has been previously impaired the absorbents have been considerably affected, and a complete and sudden oedematous attack produced.

I have had opportunities of observing, in a few cases, that agricultural labourers who have abandoned their employment and become miners are perfectly unfit for under-ground work, and very soon become affected, and have been obliged to return to their former employ; but miners who have through the whole course of their lives been accustomed, and from boyhood habituated, to work under ground, and have taken care of themselves and not indulged in the baneful excesses I have alluded to, I have no hesitation in saying that I believe the periods of their lives would equal those of any other labourers.

Lastly, I have to thank Mr. Edmund Pearse, who resides at Tavistock, and has had long-continued and large experience among the miners of Devonshire, for these observations concerning them:

I regret that, in consequence of not having kept a regular and classified account of cases that have come under my management, I cannot reply to your queries in as satisfactory a manner as I could wish. To your first inquiry I answer, No; but the case is different in factories where the children have in-door occupation, and are consequently by no means so healthful and robust as are the mining boys and girls; indeed there are no young people who look so full of health and spirits as do those who work in the mines; that is (as the miners term it) at grass, or in other words, on the surface.

To your second query I reply, that we have had several cases of fracture and concussion within these last two years, such as fractured thighs, crania, and concussio cerebri, but, so far as I can recollect, none that have been fatal; and these sort of accidents proportionably, much less frequent than formerly, that is, say thirty years ago; the diminution of accidents arising from the general improved method of working mines.

To your third query I reply, that I have not directed my attention to the comparative longevity of miners dependent on the ages at which they were first put to work, but of this I am quite certain, that from the better method of working the mines, namely, their driving adits of a larger calibre, and consequently ensuring a freer ventilation, &c., the longevity of miners is considerably increased, and pulmonic disease materially diminished.
Thirty years ago, in this neighbourhood, no disease was more common among miners than pulmonary consumption, and that brought on by repeated attacks of pleuritis and pneumonia, the subjects of which diseases would never afford themselves sufficient time and rest perfectly to recover from one attack before they would be seized with another, from going again to their work in damp places and in bad air before they had sufficiently recovered.

A solution to your fourth query may be gathered from what I have already stated.

EVIDENCE COLLECTED BY CHARLES BARHAM, ESQ., M.D.

MINES OF CORNWALL.

Explanation of the letters prefixed to the depositions of persons examined.

A. Magistrates
B. Clergy and Ministers of Religion
C. Medical Men
D. Private Persons
E. Mine Agents and Employers
F. Adult Miners
G. Miners' Wives
H. Mining Children and Young Persons
I. Patients who have been employed in mines

Copper Mine (No. I), Trethellan

No. 1 (E.1) *Mr. Sprague*. Examined April 19, 1841:
Is one of the agents managing the mine. The greatest depth at which the mine is worked is 75 fathoms below the adit; the adit is 64 fathoms from the surface, so that the whole depth is 139 fathoms.

Has there been introduced into this mine any change in the distance of the staves of the ladders, which was formerly, I believe, almost always one foot? Yes, the staves in this mine are all 10 inches apart, and the ladders are inclined nearly 2 feet in a fathom; the lode underlays a good deal; the ladders are 5 fathoms in length; there is a platform at the foot of each, but no penthouse over the head of the ladder below.

Have you found that the labour of climbing is much lessened by this alteration in the distance of the staves? The miner would travel 200 fathoms as easily as he would 150 before; there is a great difference in the ease of climbing between the *10-inch* and the *foot* stave, but it must be adopted on all the ladders alike; nothing is worse in climbing than to find at one time that you have not lifted your foot far enough, and at another to bang it down upon the bar from having lifted it too high. No accident that I can recollect has happened on our footway.

Do you know what is the usual length and inclination of the ladders in the mines in this neighbourhood? I have been employed in a great many of the mines in this district; the length of the ladders is mostly about 5 fathoms, and they are inclined from 15 to 18 inches in the fathom; there are very few of the old 10-fathom ladders.

Do you know whether there is any material difference between the larger and the smaller mines in the condition of the surface labourers? There is not much difference in this part of the country; the conveniences for shelter are commonly less in the smaller works.

Are you aware of any irregularity in the payment of wages in any of these works? In this neighbourhood the payments on the owners' account are quite regular; here all the surface labourers are paid separately at the month's end. We often have complaints of the men not paying the boys employed underground; we were desired the other day to check a man's pay who had come here from another mine where he had not paid the boy hired by him; when such complaints are made against a man who continues to work in our mine, we pay the boy ourselves, and deduct the sum from the man's pay.

What do you consider to be the hardest work performed by the young people at surface? "Jigging" is perhaps the most irksome; the position is constantly stooping forwards, and the exertion strains the back, which often aches; I used to feel this myself; I jigged for nearly two years together. The jiggers are rather small boys, because they can stoop better.

Another agent, who stood by, said that he had known in several instances in other mines when the jigging was continued for many days in succession by the same boys, they have brought up blood. In this mine they take it by "pairs" (relays).

Do you find it necessary to employ many more surface labourers at one time than at another? No. We keep the same hands constantly employed. At "sampling", they take the filling the barrows and the carrying them to the "doles" (heaps, into a certain number of which the ores are divided, for the convenience of purchasers), in regular succession.

Have you noticed the food the boys and girls bring with them for their dinner? They have chiefly potato pasties, with some of them a little meat, mostly pork in them; "hoggans" are not so plenty as they used to be. There is in most cases as much as they can eat.

Another agent stated that they commonly collected in groups for their dinner, but that he had observed some of the girls steal away at times to eat their meal behind a hedge, ashamed of the meanness of their fare. He had likewise noticed the occasional faintness of young women at their work, he believed arising from insufficient sustenance.

There is no accommodation for warming the dinners in our mine, nor for supplying any warm drink.
The "hoggan", called also in different districts "hobban" and "fuggan", is a coarse kind of cake, prepared by incorporating pieces of potato, or sometimes raisins, with a sheet of dough, which is then rolled up and baked.

Does the nature of your ground require the use of a large quantity of gunpowder? Our

ground is very hard, and we are almost always "shooting". We use about half a ton of powder a month; the air may be tolerably clear for a time in the mornings before the first "shooting" but it is afterwards mostly very thick with powder-smoke, often so that you can hardly see your hand.

The ores are ground in this mine by a machine called a "crusher". which is worked by steam. The persons employed in supplying the stones to this mill, and in removing what has been broken, must inhale a large quantity of mineral dust. The agent who went with me to the "crushers'' said that the inconvenience was much less in this mine, as it was only necessary to use the machine once a week, but when water-power was used, he knew mines in which it was constantly at work, and the dust was in them very hurtful.

No. 2 (H.1) *John Henry Martin,* 12 years and 8 months old. Examined at Trethellan, March 6, 1841:

How long have you been lame? I had gatherings when I was six months old (scrofulous affection of the right hip-joint).

My father died two years ago. I can "travel" and play with the other boys. I don't feel any more in that leg than in the other.

This is the first place I came to work, about a year and half ago. I then went underground in "Wheal Brewer" (a mine at that time connected with this). My work was "blowing air"; this was 60 fathoms below adit, 120 from surface. I could climb "tolerable well".

My work here is "washing up". My feet are wet all day; do not take cold; have lost no time from sickness.

I come here at 7 o'clock in the morning; take my dinner, which I bring with me, at twelve. Generally dine on potato-pasty. Lives half a mile off (in fact nearly two miles). Sometimes travels the distance in half an hour. Has hot tea for breakfast, and bread (barley or white) and treacle.

Mother has twelve children, eight boys and four girls. Three brothers older than himself work underground here, and one sister at Tresavean.

Mother keeps on a little farm, in which the younger brothers assist, and the elder ones too when out of "core" ("course" or turn of work at the mine).

Goes to Sunday-school at the Methodist Chapel at Stithians; has gone there for three or four years. Learns to read only.

I heard him read in the New Testament, which he did tolerably well.

Has no holidays except Christmas and Good Friday.

He changes when he gets home if his clothes are very wet.

Gets potatoes boiled or baked for supper. Goes to bed at seven or soon after.

He gets 12s a month wages, from which *2*d is taken for the doctor (for surgical assistance only). Earned 10s last month. The cold weather prevented his working some days. He "came up to the 'floors', and found the tables covered with snow, and the 'pickers' could not work." Went home again.

Does not feel tired when he leaves work. None of the boys complain of being tired.

I give my wages to my mother.

No. 3 (H.2) *Samuel Tippet*, 10 years and 7 months old. Examined at Trethellan, March 16. 1841:

Has worked here at the "floors" a fortnight now. He worked before at the mine for two "spurs", two months each time, at the "slimes". Gave up "because the slimes was knacked." His work now is "washing up".

He lives with his grandfather about half a mile off. He pays his wages to his grandfather.

Had *seven* shillings a month on his first "spurs", and now gets *ten.*

He sometimes feels tired when he leaves work; chiefly in the back and legs.

He brings potato "hobban" with him for dinner. For breakfast he gets milk and water and bread, barley and wheat mixed. For suppers baked potatoes, with pork sometimes. Goes to bed at eight; likes to stay up longer.

He goes to school in the New Church (Lanher); has gone to Sunday-school two years. Learns to read and spell.

Heard him read in the Testament; he read pretty well.

No. 4 (H.3) *William Harris*, 15 years old. Examined at Trethellan March 16, 1841:

Is quite well in health. Has been at work four or five years. Was at Tresavean first. Has been here for ten months, "griddling" and wheeling stuff. He feels tired at night in the "chines" (loins); this passes off with rest.

The only accident he has suffered from was a gathering of the finger, from its being poisoned with "mundic water"; this kept him a week from work; he feels nothing from it now.

His father died from a hurt 12 years ago. His mother was left with five children. She married again. His father-in-law takes good care of him. He is "hind" with Mr. A. Jenkins (a gentleman living in the country, some miles off).

He goes sometimes to Sunday-school; has never been at any other.
His wages are 15s a month, which he pays to his mother.
All the family are employed in mining; they are all healthy.
He works sometimes a little at harrowing and different things about the farm, after he comes home from the mine; is not forced to do so.

No. 5 (H.4) *Thomas Knuckey*, 14 years and 2 months old. Examined at Trethellan, March 16, 1841:
Has a slight hoarseness; has had it "to and again just ever since last Christmas."
His work is "jigging;'' he sometimes gets wet in the feet at this work; does not feel his feet cold; he does not change his shoes and stockings when he gets home; does not always get them dried at night for him to put on next morning.
He lives with his grandmother; his mother lives at some distance.
He gets potato "hobban" for dinner; barley bread and butter for breakfast; and boiled potatoes, with fish at times, for supper.
He has worked in this mine three years and at Tresavean two years before.
He went to day-school for two years before going to Tresavean, and since that to Sunday-school, at a Methodist Chapel.

On trial he wrote fairly, ciphered a little, and read well.

No. 6 (H.5) *Grace Bawden,* 17 years and 9 months old. Examined at Trethellan, March 16, 1841:
She has been in good health at the mine, where she has worked for a year and seven months. She was previously employed at straw-bonnet making for two years; she gave up this in consequence of her health failing. Finds that her employment at the mine agrees with her very well. Her work is "spalling" and "cobbing;" she would as soon do one as the other.

The difference between "spalling" and "cobbing" is this; the former is the breaking of large stones with a long-handled hammer, usually performed in a standing or rather stooping posture, in the open air; the latter consists in reducing. the stones to a smaller size, which is effected by a short-handled hammer, with the aid of a sort of anvil; the girls sit at this work, and are often surrounded by a large heap of the broken stones, by which the lower extremities are apt to be chilled. This is commonly done under shelter.

She lives two miles off, in lodgings; for these she pays 6d a week, which includes cooking her victuals; she is not very comfortable in them. Brings a pasty with her for dinner. She earns 9d a day. Went to Sunday-school at Lanher.

She read pretty well. I was informed that she was expected to be married ere long.

No. 7 (H.6) *Martha Williams*, 11 years and 5 months. Examined at Trethellan, March 16, 1841:
Is very well and hearty; is employed picking, which she finds easy work. She has been a year at work here; this was the first place she went to work; she lived at home before with her mother at Redruth; does so still; her mother takes in washing; her father has been dead this brave while, he died when she was about two years old. Went to day-school before she came to the mine; learned to read, not to write; goes now to the Baptist Sunday-school.

I put her to read in the Testament; she read very badly.

She walks out from Redruth in the morning, and back in the evening (a distance of more than five miles a day). She gets milk and bread, as much as she can eat, for breakfast; pasty with meat in it for dinner; and tea or potatoes for supper. She goes to bed about seven o'clock.

Copper Mine (No. II) TRESAVEAN

No. 8 (E.2) Mr. *Joseph Jennings*. Examined March 23, 1841:
Is one of the principal agents superintending the working of the mine; his age is 42; he went to work at surface at 10 or 11 years of age; continued to do so for two years at Wheal Jewell.

Did you feel any ill effects from your employment at this time? Suffered only from wet. and cold, being always of a rather delicate constitution.
At what age did you go to underground work? About 13; this was in the same mine, about 60 fathoms from surface. I went down with my father, and was employed in wheeling stuff and otherwise assisting him. *Were you aware of any ill consequences resulting from your change of employment?* I did not to my knowledge suffer in the early part of my being underground at all; but when I was about sixteen I went to work at Weal [sic] Squire, and I then suffered from the labour of filling the "kibble"; besides that I worked very commonly ''double core". After being in that mine for a year and half I returned to old Wheal Jewell, and worked as a "tributer" for about three years, at 12 or 15 fathoms from the surface; I did not suffer then.
Do you know of any change having taken place of late years in the ages at which children generally begin to work at the mines? If any difference exists, the children are younger now

than formerly; this is to be attributed in part to the difficulty of obtaining relief under the New Poor Law. In the course of a month we send back many, thinking them too small for the work, being from 7 to 8 or 9; they are brought by the mothers, who complain that they cannot get bread for them.

Have the goodness to state how you were employed after the period last referred to? I worked at tribute and tutwork in different places till I was from 27 to 28 years of age, when I went to Cathedral as agent; I continued there for seven years, and then came here in the same capacity in 1835. During all this period I enjoyed tolerable health; for the last two years I have suffered in the throat and chest; this is, I suppose, the effect of hard work.

I feel much from climbing the ladders, especially since I had an attack of indigestion, attended with a rash upon the skin, which came on after I took a glass of beer while heated and fatigued with climbing.

This was no doubt an attack of urticaria. Mr. J. was affected when I saw him on this occasion with the chronic pharyngitis, so commonly associated with disorders of the gastrohepatic system. He is a well-grown and strong man, though carrying some of the usual signs of dyspepsia about him. A few weeks afterwards he scarcely complained of these ailments.

Will you inform me what education you received before you began to work, and what afterwards? My schooling was very little; I learned to read a little at Sunday-school before going to work at surface, and afterwards to write a little at an evening-school. The rest of what I know was picked up as I could.

What are the hours of work in this mine for the surface labourers at the different seasons of the year? From seven in the morning to half-past five in the evening are the hours of work all the year round, but in the winter they begin and end with the daylight. There is no difference in this with respect to ages.

Is any method adopted by which the duration of the labour is sometimes shortened? Yes; they often have a task set them, after finishing which they are free to go; they generally do so. It is very seldom that any but the elder girls work extra time after their tasks are finished, and they not often.

Is work ever done on the surface after the regular hours of closing? At "sampling", which occurs twice in the month, and especially in the winter, when the days are short, "bucking," which is done by girls seldom under 16, unless very strong, is carried on by candle-light; this is perhaps done four nights in the month on an average, and is generally continued till about half-past eight. This working is voluntary, but a girl might be considered lazy and lose her place if she declined.

Is any difference made according to age in the time of underground labour? No: all alike work eight hours, with exception of those employed in the sump, who work six hours only; there are only four in the whole mine.

Do the boys occasionally work longer than you have just stated? Those employed at tutwork very seldom exceed their eight hours: the tributers, who are considerably fewer, do so sometimes when their "pitch" is very promising. Boys of the former class are commonly recommended to the men by the agents. The tributer chooses his own boys, and is not interfered with unless it should be noticed that he is employing some very small or weakly boy, when he would probably be advised to get a stronger one in his place.

A change has, I believe, been made in this mine with respect to the distance of the staves in the ladders: what is its extent and effect? A large part of our footways is now furnished with ladders, the staves or which are ten inches apart; this is found to be a great relief in climbing; the miners will go many score fathoms out of their way, in order to come up by these ladders. We intend all to be of this kind when new ones are supplied. They are about 4½ fathoms in length, and are inclined 1 ft. 9 in. in the fathom; this is found to be the best inclination for dividing the weight of the body between the hands and feet. The distance of the staves is usually 1 ft., and in old times it was often 14 in.

Do you consider that it would be practicable, as far as the work of the mine is concerned, to allow the boys and girls under 14 years old to leave work at 4 o'clock, with a view to their attending an evening school? The sacrifice arising from such an arrangement would, I believe, be very trifling indeed.

No. 9 (H.7) *Henry Francis,* 16 years old. Examined at Tresavean, March 23, 1841:

Has worked underground about three years. Has been underground from seven o'clock this morning until now (between two and three). Has been employed in turning and beating the borer, in the 75-fathom level. Goes to hoeing potatoes, and other husbandry, when his father wants him, after he leaves work at the mine.

His pulse is 70; he has a rather delicate appearance, and is small-sized for his age.

No. 10 (H.8) *Thomas Dunstan*, 16¼ years old. Examined at Tresavean, March 23, 1841:

Has been underground since six o'clock this morning. In the 136-fathom level. Has been employed in "rolling" (wheeling stuff), which is his usual work. He does not feel much tired. Comes up the ladders "brave" fast. Sometimes feels out of breath. He has worked underground, altogether about six months. He takes some food with him to eat underground. Could not get any water, though very thirsty. Has been three years employed in this mine. Sometimes he works with his father when he gets home.

Pulse 75. A rather small but hardy-looking boy.

No. 11 (H.9) *James Orby,* about 18 years old. Examined at Tresavean, March 23, 1841:

Has been underground since six this morning, in the 75-fathom level. Has been *holing* and *beating* the borer. One about as much as the other. Has gone underground these three years. He stays overtime (16 hours) about once a month. Does not feel much tired now. Does not think much of the *climbing*. His work is commonly "rolling"; this he finds the hardest work. He always takes his meat underground. Sometimes he cannot get water, and then he cannot eat his "crowst".

Pulse 70. A strong and well-grown lad.

No. 12 (H.10) *Henry Vincent,* 18 years old. Examined at Tresavean, March 23, 1841:

Has been underground since six A.M. in the 200-fathom level (about 1500 ft. from the surface). Has been employed "tramming" (pushing the tram-waggon along a railway) in various places; the road is clean and dry. He reckons on its taking him half an hour to go down and an hour to get up again. Does not feel much fatigued on coming to the surface. He sweats freely underground. Takes his dinner underground; eats it when he chooses, generally a bit now and then, no regular time is allowed. Water is sent down in kegs.

He goes to evening-school (only), when he can, at Stythians Church Town; the payment 3d a week.

He has been working underground about 4 years, and at surface some years before that.

Pulse 72. A strong, well-grown lad.

No. 13 (H. 11) *James Stevens,* I5½ years old. Examined at Tresavean, March 23, 1841:

Has been down since six A.M. in the 146-fathom level. Has been "rolling", which is his usual work. He has been underground for three years. For the first two years he was in Wheal Harmony at the 50-fathom level; his work there was "rolling." He works only four or five days in the week; never at night. Lives at Redruth, finds the walk tiresome. He goes to bed about seven and rises at four. Sometimes does not get breakfast before he leaves home in the morning, but takes a bit of bread and butter with him. Does not get any dinner till he comes home again, and then not always as much as he can eat. They are nine in family, of whom four are not yet able to work. He goes to Sunday-school sometimes. Can read very little.

He is by no means robust in appearance. Pulse 70.

No. 14 (H.12) *William Richards*, 18 years old. Examined at Tresavean, March 23, 1841:

Has been underground since six A.M. in the 100-fathom level. Has been employed "hauling tackle"; this is harder work than "boring and shooting" with the men. Has worked underground a year and a half; was at "Consols " before he came here. He worked two "double cores" last week; was very much tired; does not feel tired with his single core. He takes a "crowst" down with him, and has his dinner when he gets home to Carharrack. He worked "to grass" (ie. at surface) at nine years and a half old, at Consols; did not feel that work hard: did not often work overtime. Can scarcely read at all. Can get water underground, when he likes to drink.

A strong and well-grown lad. Pulse 76.

No. 15 (H.13) *John Tresidder*, 18 years old. Examined at Tresavean, March 23, 1841:

Has been underground since six A.M. in the 146-fathom level; has been "rolling". Has a cold at present. Has been a twelvemonth working underground. Before that time he was employed at a stream-work in Wendron. The hours there were from 7 or 8 till 5; the wages 16s. a month. He has enjoyed good health since he has been here. Works double core about once a week on an average. Takes a "crowst" with him underground, and dines after he gets home. Lives four miles off. Is tired with his walk home. Has been at Sunday-school some time, but cannot read.

A strongly constituted lad. Pulse 75.

These boys were examined as soon as possible after their coming to the surface, on the conclusion of their day's work. The four former were exactly in the state in which they came from underground, as to clothing, wet, and dirt. The three latter had changed their clothes and washed; not very effectually. All of them, excepting the last, had a weak and rather irregular pulse.

No. 16 (F.1) *James Stevens*, 40 years old. Examined at Tresavean, March 23, 1841:

Worked at surface from about 13, and underground from about 15; at Wheal Harmony most of his time.

When men work overtime, do the boys continue with them as long as they remain underground? The boys do not remain unless they are asked. Has hardly ever worked double cores of late himself; he finds one core quite enough for him. He has been "hurted" four times underground; when a boy he was injured very seriously by the falling

in of ground in Trescorbie; he still feels the effects of the injury in the head then received. Is now tired. Has been working at the 230-fathom level, "stoping".

This man looks much more than 40 years of age, worn, and exhausted. His pulse 60, firm.

No. 17 (F.2) *Abraham Harris,* 54 years old. Examined at Tresavean, March 23, 1841:

Has been working in the 146-fathom level, "boring" (this is probably the worst air in the mine); has been there perhaps a twelvemonth. He went underground about 11 years of age with his father in North Downs; he did not work "at grass" at all; he was then employed "rolling"; always felt the work quite hard enough. He has four boys working underground; their ages are 19, 15, 14, and 11; they complain of being tired with their work. He had one son killed by his falling from one level into another about three weeks ago.

Formerly, 25 or 30 years ago, the usual time of labour was six hours instead of eight as now he himself only works by day. They always provide something for their children to take down with them, a piece of bread or pasty; they have their regular meal after they come home.

Looks feeble.

No. 18 (H.14) *Mary Ann Roscorle,* 12½ years old. Examined at Tresavean, March 23, 1841:

Is employed at "picking". About 30 or 40 children work together on the same "floor" with herself. She goes from home at six in the morning to her work, and leaves work at half-past five. She takes a part of what she brings with her for dinner at "crowst" at 10 in the morning, when a quarter of an hour is allowed.

She never works after the regular hour of leaving; sometimes she has a task set her, and leaves work some hours before time.

Half an hour is allowed for dinner; finds she has time enough to eat her dinner with comfort. Does not suffer from cold in the shed at dinner-time.

She learned to read in the workhouse. Her mother was unable to provide for her; she therefore lives with a man called Reed, who boards and lodges her, and to whom she pays what she gets. He treats her kindly.

No. 19 (H.15) *Jane Uren.* Examined at Tresavean, March 23, 1841:

How old are you? Sixteen.

How do you know your age? I have always known it.

How many children work in the same place with yourself? I can't tell exactly.

She has been employed "cobbing"; has been two or three months at this work. Has been working at the mines "in the six years". Lives a mile and a half off. Very seldom works overtime.

Do you ever leave work before the regular hour of closing? I generally "cob" a barrow and a half (the barrow is about 1½ cwt.), and if this is done often go at five o'clock.

What do you drink with your dinner? Water.

She cannot read; has not gone to school lately. Her father has ten children, five of them employed at the mines; the older ones can read the Bible.

No. 20 (H.16) *Mary Johns,* 14¼ years old. Examined at Tresavean, March 23, 1841:

She is employed "spalling" and "carring" [sic]; the latter is the hardest work. She has worked here for about a year. Was in service before. She found it hard work at first, but her health has been much better than when in service. She lives at Redruth, two miles and a half distant; feels the walk heavy; she suffers from pain in the back and side, the latter increasing; particularly in carrying. She had pain in the side before she came to the mine, chiefly felt it when sitting; it comes on now about 11 or 12; passes off with further work. She works out in all weathers, and gets wet at times, but does not often take cold.

Was at a day-school in Redruth, and still goes to Sunday-school.

I heard her read, which she did tolerably.

No. 21 (H.17) *Elizabeth Karkeek*, 18 years old. Examined at Tresavean, March 23, 1841:

Lives at Redruth. Her work is "bucking". She has been five months here, and two and a half years at other mines. She does not feel much fatigue, except a pain in the left arm at the change of the weather, which she imputes to a sudden strain in lifting too heavy a weight. Does not know of any accidents having happened in the mines from carrying or other work at surface. She is now obliged to "buck" eight barrows for a shilling; some months ago the same price was paid for six barrows; when she has earned that sum she usually goes home, often about four o'clock. She went to work first at 14½; before that was at day-school, where she learned sewing. She still goes to Sunday school.

Found that she read tolerably.

"Bucking" is the term applied to the last reduction of the size of the mineral by hand. It is a bruising process, performed on anvils, a series of which are placed along a sort of table, where the girls stand with a rather short hammer, having a piece of iron about 3 inches square, and 2 or 3 pounds in weight, at its striking end. It is used with a half-striking, half-rubbing move-

ment by one hand, the other being engaged in sweeping the stones in upon the anvil. This work is considered to be about the hardest on which females are employed.

The above girls had all of them a healthy appearance. They had just finished their day's work when examined.

No. 22 (H.18) *Richard Uren,* 11½ years old. Examined at Tresavean, March 23, 1841:

His mother told him his age. Has been two years at work. His work is "washing up". Lives near the mine. Does not complain of anything. Has no father; he died "of a galloping consumption" three years ago.

I heard him read, which he did tolerably.

No. 23 (H.19) *Joseph Odgers,* 14½ years old. Examined at Tresavean, March 23, 1841:

His work is "jigging". Has been two years at this, and altogether three years at work. He finds his work causes him pain in the "chines", and hears most of the boys complain of this after working some hours. He generally gets wet in the feet, but does not take cold. Lives two miles off. Twice or three times a week he gets away about two o'clock, having finished his task. He will soon go to "griddling". He was four years at John Martin's school at Stythians, and since has been at Sunday-school.

He reads tolerably.

No. 24. (F.3) *Elisha Williams,* 27 years old. Examined at Tresavean, March 23, 1841:

He went underground at about ten years of age. Was quite well a twelvemonth ago. Felt no ill effects from his labour before that time. He then "caught a hurt" in beating the borer; since which he has not been able to do any hard work.

No. 25. (F.4) *John Crougy,* 44 years old. Examined at Tresavean, March 23, 1841:

Is employed as "captain over the trammers". Has been underground since he was about 15 years old. Has been 20 years in Tresavean. Has not been healthy these ten years. He received a blow from a waggon (tram) about a month ago in the side; since which he has found an increased pain in the part where he had the inflammation ten years ago (right hypochondrium). He did not suffer before this attack from the ordinary work. Since that he has only been employed at light work.

No. 26 (G.1) *Mary Moyle,* 51 years old. Examined at Truro, March 10, 1841:

She lives at Gwennap Church Town. Is sextoness. Her husband was killed by falling from the roof of the church. She has 10 children, eight boys and two girls. The *eldest boy* is married: the *second* she now brings to me for advice.

He has symptoms threatening phthisis, after fever. He is not a very robust man; temperament melancholic; complexion rather sallow. Nothing, is at present discoverable by auscultation or percussion.

He is 25. He went to work at surface at the age of 13, at the United Mines. He went underground about 16; worked with ''tributers" at the back of the adit. He was employed in throwing back the stuff, holding and turning the borer, &c. He did not feel the work.

She has four other boys at Tresavean, all underground; the youngest went underground about 12. They were at school. Two of them can read, and also write a little; the others did not make any progress. Three of them suffer from shortness of breath whenever they take cold.

No.27 (I.1) *Richard Burrows,* 26 years old. Examined at Truro, March 10, 1841:

His face is covered with an eruption (eczema impetiginodes), which he attributes to having "poisoned" a small wound in his ear by the introduction of "mundic" (sulphuret of iron) whilst working in Wheal Anna Francis. He is a strongly constituted man. He has worked there about ten months. He went underground first at Consols between 10 and 12 years old. He went to about 80 fathoms from the surface, not deeper at first: he worked with his father. A boy of that age gets 1s a stem, or by the day, or 15s a month usually. He enjoyed good health throughout. He has a brother who works underground in the same mine with himself, who is between 10 and 11. He went to Sunday-school himself, and can read a little.

No. 28 (I.2) *Eliza Allen*, 20 years old. Examined at Truro, March 10, 60 1841:

Has been at Consols two years. Is employed "sitting down cobbing". She worked with her father before. She suffered from shortness of breath, and "felt her legs go weak, so that she could hardly stand on them" from the first. Her wages are 18s a month, but

she cannot earn half that sum. She finds it difficult to keep her feet dry, and always catches cold when she does not. She never went to school; can scarcely read at all; can sew for her mother a little. She is a rather delicately-constituted girl, and is now labouring under disorder of system, for which she seeks my advice.

No. 29 (I.3) *Benjamin Sarah,* 23 years old. Examined at Truro, March 10, 1841:
Works at Wheal Unity Wood. He began to work underground at this same mine under 10 years of age; generally worked at no great depth at that time. He has worked at other mines since. He did not suffer in health for several years.

He now labours under pulmonary catarrh, which, he says, is constantly recurrent on fresh exposure to wet and cold.

He had learnt to read before he went underground, and to write a little at the evening school at. Chacewater.

No. 30 (I.4) *Charles Barnet,* 36 years old. Examined at Truro, March 10, 1841:
Is employed at West Wheal Jewell. Has worked there about four years. He overreached himself in his work, after which he brought up blood, which he has done from time to time since. Has not been capable of working underground since, and has an easy place, being employed in looking after the drying of the miners' clothes. He first went underground at about 12 years of age, and worked a year and half "at grass" before. He did not feel any ill effects front his work when young. He learnt to read and write a little before going to the mine.

His complexion is sanguine, pulse hemorrhagic, lungs seriously diseased.

No. 31 (I.5) *Charles Oates*, 41 years old. Examined at Truro, March 10, 1841:
Is employed at West Wheal Jewell in the "sump". Suffers from ophthalmia, which he attributes to his exposure to cold in the sump. The mine is in granite, which is generally wet in the sump. There is likewise a strong draught of wind there. He has gone underground from 12 years of age; first at Wood Mine. He worked at times two days (12 or 14 hours) in one. Did not suffer from this. Was at school before, and has gone to evening school since he went to work. The boys always work as long as the men. They do so if the work is continued beyond the usual eight hours. The boys take their pasties with them. Six hours of "barrow" work is, however, allowed as eight hours lighter work. No difference as to night or day is made in consideration of the age of the boy.

No. 32 (I.6) *Anna Wasley*, 20 years old. Examined at Truro, March 10, 1841:
Works at "Ale and Cakes" Mine. She went to work at 13, suffers from shortness of breath on any exertion; has done so for a twelvemonth past. She works ten hours a day; from seven to half-past five, with half an hour for dinner; has done so from the first. Her mother has seven children, five boys and two girls; they have gone to work at seven or eight years old.

No. 33 (I.7) *Sally Fall*, 19 years old. Examined at Truro, March 17, 1811:

She suffers from pain in the left side, palpitation, and shortness of breath. Has worked among the Gwennap mines; she has of late years been chiefly employed "bucking"; she considers she overstrained herself last Whitsuntide in lifting a heavy weight. She went to work at 11; did not feel it hard till she was laid up with inflammation in the side when about 13 years of age. Did not go to school, and can hardly read. Her mother has six children: one boy is 17, he works at Tresavean, underground; he went underground about nine years old; his father died of cancer; his death has obliged them to go to work early. He reads tolerably in the Bible; enjoys good health; his mother is afraid his slight living may injure him, as he grows fast. A younger boy, who is about 10, has worked at the stamping mills for about a twelvemonth, has not suffered. The other children are younger.

Is stout and florid; but constitutionally disordered.

No. 34 (I.8) *Paul Trewartha*, 43 years old. Examined at Truro, March 17, 1841:
He enjoyed good health until just before Christmas. when a short tickling cough came on; thinks he took cold. Is exposed to wet and cold in his employment, which is watching the dressing of the ores; works in the United Mines: has been there for the last six months; before that in Consols. He went underground, about the adit level, at nine years of age; was employed "blowing air."

No. 35 (I.9) *James Harper*, 38 years old. Examined at Truro, March 24, 1841:
Works in Wood Mine; suffers from shortness of breath on exertion; has cough, but not very severe; he has worked till within three weeks. He went, underground about 16. Has

been always employed in the Gwennap mines. Was at surface-work very early, when not more than four or five years old. He learnt to read and write. Has hardly worked "double cores" once a quarter; regards it as an injurious thing. He thinks there is a great lessening of drinking within the last six months, chiefly owing to the teetotalers. He has four girls; if he had fifty he would never allow one to go to a mine; they are exposed to be corrupted by bad conversation. The ladders are usually about five fathoms in length. When out of breath and others were pressing from below, he climbed one ladder and then let his comrades pass him on the platform. The worst air is found in driving the levels; in Wood Mine they are often six or seven feet wide, and as much in height. The tributers are most liable to breathing in dust from the ore in their work. He does not hear the boys complain.

No. 36 (D.1) Mr. *George Harris.* Examined at Redruth March 20, 1841:

Is collector of rates; has filled that office or that of overseer, or both, since 1830, in the parish of Redruth. There are in this parish about 10,000 inhabitants; about 2000 families rate-payers; by the last census there were about 200 able-bodied miners in the parish above the age of 20. About one quarter or rather less of these live in single rooms; generally there are two or three such rooms in a house; in one instance there are as many as eight tenants, who are either actually miners or were such formerly, living in one house; the rest live in separate houses, occupying generally two rooms, at the rent of £3 or £4 yearly. The rates on these have been about 3s 10d in the year; at our last collection of rates only £1 19s 6d was deficient out of £550. There may, perhaps, be about forty of the miners, heads of families, given to irregular habits. He has noticed a marked difference on the side of improvement within a few months after they have joined the total abstinence society. He has not seen any great deficiency of food and clothing, except where the head of the family is dissolute; he has seen but little disease among the families of the miners, and does not consider that any disease he has witnessed could be fairly attributed to the insufficient food and clothing, of those who are actually employed in mines. When the father is steady the sons frequently continue to live with him up to the age of 20, bringing in to him a part of their wages, equivalent to their board and lodging, after they receive man's pay. If the father is a drinking man the sons go off earlier. The girls seldom go to the mines whilst the father is alive, provided he is an industrious steady man; they generally live at home unless the family is very large. He has noticed a decided improvement in the living of the mining class within these thirty years; much less barley is now used, and more meat. He considers that the young women employed in mines make generally very careful, cleanly wives when they get steady husbands. His opinion is, that with few exceptions, these young women are well conducted; he believes that the instances of young women being pregnant when married are very much less numerous than formerly, and he knows that the number of illegitimate children is greatly lessened since the new Act has come into operation, not one in ten certainly now coming under the notice of the parish officers compared with what there were before. He himself worked underground for six or eight months when 12 or 13 years of age; he had worked "at grass", driving a whim, at seven. He gave up going underground in consequence of accidents befalling his comrades on two occasions when he was standing by. He considers that there is less weight carried by the boys from underground now than formerly. He believes that nine out of ten at least of the boys in Redruth connected with the mines can read, and that almost all can write.

No. 37 (F.5) *John Young*, 50 years old. Examined at Redruth, Mardi 19, 1841:

Works now at Tincroft in Illogan; his employment is "landing" or putting away the stuff when first brought to the surface; has always been at surface except four years. He went to a mine first at 21, having been a husbandman previously; he went underground first, and worked at Wheal Vor for four years, but finding his breath beginning to fail he then took to surface-work. Has noticed the boys and girls at the mines; has seen very clearly the difference between the boys "at grass" and underground; the latter are much paler. Has seen that young men going underground first at 18 years of age have stood better than those who have begun at an early age. There is not much difference in the rate of pay in different mines.

No. 38 (E. 3) Mr. *Thomas Stevens,* 45 years old. Examined at Redruth, March 19, 1841:

Is employed at Tincroft as a surface captain; has been there for 15 months; has worked underground in East Crinnis and Lanescot (copper-mines in the Eastern Cornwall District), four years in Beer Ferris Lead Mines (Devonshire), and two years in Charlestown Consols Tin Mines (East Cornwall), before he came here. He considers the average age of going underground to be from 13 to 15; the effects on the health he has observed to have varied in different mines in which he has been, more according to the air being "poor or not than from the kind of ore or mineral". He considers that young men going to work underground at 18 or 20 would not feel so much from poor air as those who went earlier. He has not heard complaints of children not being taken good care of by their parents. He went underground himself at about 13, and has been almost always underground since; he has been on tribute, and considers the tributer is not so much exposed to bad air as the tutworkman. He always observes some improvement in order among the children where there is a Sunday-school established near them.

No. 39. (F.6) *William Besanko*, 47 years old. Examined at Redruth, March 19, 1841:
Works at the Carnbrea (copper and tin) Mines: has been underground all his time since he was 18; before this he worked "to grass" from about 8 years of age; he did not suffer; he sees no great change in the accommodation for surface labourers since that time; has had good health himself. He thinks that those who have come under his notice who have not worked underground till 17 or 18 have been stronger men, and have lived to a more advanced age, than those who have gone underground much younger. He thinks a great many boys and girls when at grass have work too hard for the food they get. He considers the majority very disorderly in this neighbourhood, more so than in any other part he has known; but thinks there is some more interest felt by parents in the education of their children than there was thirty years ago.

No. 40. (E.4) *Mr. Richard Carpenter*, 30 years old. Examined at Redruth, March 19, 1841:
Is employed at the Carnbrea Mines in overlooking a party dressing the ores; he has been so engaged for five years, during which he has never been kept from his work by illness, except one day. He has 30 under his charge, of whom only two are girls; on the whole those under his eye have enjoyed good health, but he considers that a great many suffer from want of sufficient nourishment. There is no punishment except "spaling", which is deducting a part of the day in case of negligence; by way of reward they have a job given them to do which may be finished before the regular hour of leaving work.

No. 41. (A.1) *Stephen Davey,* Esq. Examined at Redruth, March 20, 1841:
Is a county magistrate, but has only lately qualified; is a considerable employer in mines is intimately acquainted with the state of the population of Redruth. The conduct and habits of the younger portion of the lower classes is very far from orderly at present, which he attributes chiefly to the want of an efficient police; this is likely to be remedied in some measure ere long. He has not known of complaints of ill usage being preferred by the young in connexion with their employment at the mines. He considers the degree of disorderly conduct to vary with the rate of pay, increasing with its amount. When the latter is high very early marriages are also very generally contracted, and a miner of 21 or 22 will have a family of three or four children, a burthen from the pressure of which he can seldom rise; has often been astonished that men under circumstances such as these, earning 12s a week, can make that sum support six or more individuals. He has noticed a decided improvement in the comforts of the miners within the last 30 years, particularly with respect to their dwellings. Formerly families occupied often only one room each; now they generally have separate houses. The savings bank established here about 20 years has afforded a facility of which the miners have increasingly availed themselves. He considers that part of the difference in habits of providence observed in favour of the St. Agnes and Illogan miners over those of Redruth has arisen from the latter not having that occupation for their time when not underground which is furnished by the gardens and potato-plots of the former; the town miners lounging about, not knowing what to do with themselves, and consequently falling into bad habits. My brother and myself have been in the practice of granting leases on three lives to the miners, especially in the St. Agnes district, of one, two, or three acres of coarse land, on which they are bound to build a house of a certain description. A small yearly rent (usually about 5s. an acre) is paid, and a sum of £30 and upwards on the setting up a new life. Other landlords have followed extensively a similar system, and a great number of miners are now settled on their own ground, which has tended to make them less inclined to a wandering life. He believes the practice of paying the wages of a considerable number (pairs) by cheques, notes, or gold given to one of them, and requiring. to be changed before a division can be made, which must generally be done at the public-house, is injurious to the miners, the younger ones especially; and he thinks a different system might in this particular be adopted. Indeed cheques are much less used than they were; in the Consolidated Mines they are quite given up.

No. 42. (A.2) *J. P. Magor,* Esq. Examined at Redruth March 20, 1841:
Is a county magistrate; has rather recently qualified; he considers the young people employed on the surface in the mines remarkably healthy and cheerful. He believes the work to be rather too little than too much; does not think the number of hours during which they are employed could be reduced; he thinks that under present circumstances the earnings of the children are barely sufficient for their maintenance, and that the shortening of their day, which must lessen the wages, would leave them too scantily sustained. Believes that the establishment of good schools (a good national school for example) would be of very great advantage; he thinks that the children might attend it before they began to work at the mines, and sometimes in the evening afterwards. He can generally distinguish very readily between the children employed on the surface and those who work underground, the latter looking comparatively sickly; "our women and children are very fine, the men very inferior in physical development".

No. 43 (I. 10) *Henry Trevethan,* 50 years old. Examined at Truro, March 24, 1841:

Was blown up 26 years ago, and received several severe injuries, and lost an eye; he went to work again in three months; is now suffering from the effects of "poor air." No allowance is made from the mine unless there is a "green wound"; formerly 20s a month was allowed in Consols when damage was received from "poor air". He was injured on another occasion in Wheal Unity, by the ladder falling away with him. He went underground himself at 10 years old, and puts his own children to the same work very early; this is from poverty; one of them is now at work underground who is only 9 years old. He cannot afford to put them to school.

No. 44 (I. 11) *James Thomas*, 25 years old. Examined at Truro, March 24, 1841:

Is employed at Cook's Kitchen as an engine-man; suffers from sore throat, gumboils, and other symptoms of cachexia. He went underground at 15, but found he could not bear the work; then went to the engine. He went at 9 to surface-work, which he found he could stand very well. Learnt to read and write a little.

A delicately constituted and cachectic man.

No. 45 (I. 12) *Eliza Evans,* 17 years old. Examined at Truro, March 24, 1841:

Has gone to the mines from time to time, but found even "picking" too hard for her; the stooping hurts her head; suffers from headache. Her mother has six children; one girl older than herself, who is employed at Budnick "racking"; one boy of 15 works underground.

Delicate.

No. 46 (I. 13) *Fanny Francis,* 17¼ years old. Examined at Truro, March 24, 1841:

Works at the United Mines; suffers from dyspepsia, and has an eruption on the skin; she has worked at the mines about six years; always enjoyed good health till she fell in "carrying", about three months since, when she had fits. She went to day-school before she worked at the mine, and has since attended Sunday-school; she now acts as teacher once in three weeks at the Bryanite chapel. Her mother, Martha Francis, is 50 years old; is a widow; has five children, all miners. Put her eldest son underground at 12, and the second at 15; they did not complain of the work. All of them went to school, but “poor people cannot do all they would."

No. 47 (I. 14) *Jane Sandow*, 17½ years old. Examined at Truro, March 24, 1841:

Suffers from gastrodynia. She works at Wheel [sic] Gorland. Has three miles to walk to the mine. She found she could not "buckie". Is generally employed "cobbing". Her mother has ten children; all girls but one. The elder ones are employed at the mines. They generally go about ten years old. All go to school, chiefly to Sunday-school. They learn to sew and knit a little at a dame-school.

Tin and Copper Mine (No. I), Trevascus

No. 48 (E. 5) *Mr. Thomas Moyle*, 37 years old. Examined at Camborne, March 25, 1841:

Is underground agent at Trevascus. The produce is tin and copper. There are about 60 employed underground, of whom five are boys, and nine men, and 45 boys and girls at surface-work. The mine returns about £300 a month. He has been at that mine ever since she has been worked; this is about five years. He went to work at Stamps at the age of about 7½ and went underground at about 14. He has always been in this neigh-hood [sic], except during two years, when he was in the lead-mines in Perran. The depth of Trevascus is 110 fathoms from surface; she is the wettest mine he has ever known; is well ventilated; is in killas. Before she was now worked the mine had been left for 50 years. The former workings had not gone below the 40-fathom level.

Has any change taken place within your recollection in the ages at which children go to work or in the nature of their employment at the mines? I think they did not go to work so early formerly, and that a younger set are employed at the same work. They also seem to me to be smaller of their age, and the men as well are smaller, I think.

What are the hours of work at your mine? From 7 to 5. Half an hour is allowed for dinner, no other time for eating. No difference is made with respect to age in this.

Is there any method practised by winch the hours of labour are reduced? Tasks are sometimes set, but not often, which may be finished before the usual hour of closing.

When this is the case, do the children often make up extra time by working afterwards? Very seldom; not once in a hundred times.

Is work ever done on the surface after the regular hours of closing? No, except by the landers, who are men.

Is any difference made according to age in the time of underground labour? None, except that now and then wheeling a certain quantity of stuff is given the boys as task-work.
How frequently do you think the boys underground work beyond their regular course in your mine? Twice or three times in a month perhaps. Our mine is very wet and they cannot stay so long as in the dry ones. I remember, myself, when about 15, I used to stay once or twice a month, for three 12-hour courses in succession, merely coming to the surface for a short time between each "stem" of 12 hours to take some food; at that time nobody took any down with them, and the feeling of exhaustion was very great, and this was done by many of the same age at that time, in that mine, North Roskear and others. I was so much fatigued at the end of the time, that when I got home to bed I often found it impossible to get to sleep for hours. This is not done in Trevascus, and I do not know that it is done anywhere now.
Is this working overtime entirely at the choice of boys and girls? Yes, they generally have for pocket-money what they earn at these odd hours.
Is there any necessity for this working overtime as regards the welfare of the mine? No; it is done for the purpose of earning more, except now and then on occasion of some accident.
Is any difference made with respect to age between night and day work? None whatever.
Have any changes in any of these particulars been made within your knowledge? About 25 years ago it was usual for the tutworkmen to work only six-hour courses.
Would it be particularly injurious to the interests of the mine to forbid the working of boys underground before they were 16 years of age? It would be too expensive to employ boys of 16 and upwards to do the light work underground.
Would it be practicable to dismiss those under 14 from work an hour earlier than is now done? There would be no particular difficulty in the underground boys leaving work after six hours; the surface boys under 14 being generally employed in preparing work for the older ones. It would not be easy to dismiss them earlier, but it might, no doubt, be very often managed, perhaps twice or three times a-week.
No time is allowed for "crowst" (lunch) in this neighbourhood. All the work is suspended during the dinner-time. They eat it in parties, boys together and maidens together, about the mine. They are not in the habit of washing or changing their dress before dinner.
What is the earliest employment of boys underground, and to what work are they brought in succession? The first is "rolling," that is wheeling the stuff from the place where the men are working; they are afterwards employed in holding, and then in taking a turn at beating the borers; after this they take men's places.
At what work are they first much exposed to "poor air"? When filling the barrow in a dead end in driving a level, they are exposed, but, only for a short time, to "poor air".
Is any superintendence exercised as to the employment of boys who are weakly or very young in unfavourable situations? No; nothing more than a passing remark from the agent if such a thing is observed; there is no authority to interfere.
What is the succession of surface-work at your mine? Boys are not much employed at Trevascus at grass, except at the stamps; picking, cobbing, jigging, spalling, and griddling, are each in order perhaps harder work than that before it.

Sheds are provided for the girls to do much of their work in. He has not found that the underground boys fall off from their work; there has never been a death from accident since the mine has been working, and only one broken limb; no accident has happened to the children.
Good-Friday and Christmas-day are now the only holidays; there used to be many in the year; the practice of keeping their own feasts is also declining.

No. 49 (B. 1) *Rev. Hugh Rogers.* Examined at Camborne, March 25, 1841:
Held the living of Redruth from 1804 to 1816, and has from that date been rector of Camborne. Has had in both places a very large mining population under his charge; he thinks that some improvement has taken place of late years in the conduct of the young women, so that their being married in a condition in which marriage was the only means of saving their reputation is not now a very frequent occurrence; not so much so certainly as formerly. Very few of the mining boys continue to attend Sunday-school after 15; the girls come till rather older. He thinks that the miners of the lowest class do not send their children to day-school, and not generally to Sunday-school. He does not think that in the course of his experience there has been any deterioration of morals among the mining population which has been under his eye, but the improvement is not in all respects very marked. In this neighbourhood there has been a good deal of rudeness in the demeanour of the young men. especially towards superiors in station. He might perhaps say that, as compared with Redruth, manners here are worse, morals better. Is disposed to attribute an alteration for the worse in regard to respectfulness of behaviour to the bad example in part of the navigators, who worked on the railway close at hand. He thinks that there is on the whole a great deal of domestic harmony among the mining families. the children being very kindly treated and very readily contributing their earnings to the common stock, though he has known instances of sons leaving their widowed mothers, when they obtained man's wages, at 17 or 18 years of age. The young women are more expensive in their dress than is desirable; he has heard of clubs among them for the purpose of procuring more showy articles of dress than they could individually afford to purchase, lots being cast to determine whose property they should be.

Copper Mine (No. III), EAST WHEAL CROFTY

No. 50 (E. 6) *Mr. Nicholas Tredinnick.* Examined at Camborne, March 25, 1841:

Is agent at East Wheal Crofty; the produce is copper, and a little tin. He went underground himself at the age of 10¾, at the depth of 80 or 90 fathoms; he worked from that time till he was 27; was with his father, so that he had easy and various work; he did not often work more than six hours at a time. Does not know of any particular changes having taken place in the proportion of children employed, or their ages.

The hours of work for the surface are from 7 to 5 when there is daylight; half an hour is allowed for dinner. Piece-work is very common, perhaps two days in the week on the average; it is not usual for them to work after their task is done, and they often get away on these occasions at dinner-time or soon after.

Is work ever done at surface after the regular hours of closing? About the time of sampling the ores they often continue at work till 8 or 9 in the evening; this may perhaps be done during a week in the month.
Is any difference made in respect of age in the duration of underground labour? The boys often have work set them, and are allowed to go when it is finished.

Nothing is done on the Sunday by boys or girls; no work is usually done from 4 o'clock on Saturday afternoon till 6 on Monday morning; this is the regular practice in mines. Water stamps require to be watched, and may require two boys to each head. We have no furnace on our mine, we very seldom want one, perhaps twice a year, when we borrow the use of one.

The boys and girls employed by the owners are paid once a month. The tributers pay their boys the whole of what is due to them, or a part only, according to their means, out of their subsistence money. The boys and girls employed at grass are all paid in silver the exact sum due to each. The underground boys are hired by the men, but the consent of the agents is required for their adding to or lessening the number. A part of the subsistence money is paid for the boys, and care is taken that this is given them. A considerable number of girls are employed, first in one mine then in another, at sampling time, in this neighbourhood; a great many come to us regularly on the alternate months, when we are sampling, and go to another mine regularly on the months when we do not want them.

There is much more competition among the Gwennap miners for "pitchers" against the old "pair" than here. Further west it is considered quite a crime to cut down an old pair.

No. 51 (E. 7) *Mr. Rutter.* Examined at East Wheal Crofty, March 26, 1841:

Is employed as an agent at this mine; has been engaged in the Gwennap mines, but chiefly about Hayle; in Wheal Alfred in the first place. There is a great improvement, with regard to decency of language among the miners in this neighbourhood, both old and young; and the girls are much less coarse in their expressions; they take example very much from the agents, and where they hear an agent using oaths they do the same. He takes care to check swearing or bad language in this mine threatening discharge from the mine in case it is repeated; the result is that be hears very little of it. The establishment of good schools would be a great blessing; education is very much needed.

No. 52 (H. 20) *Thomas Fidock,* 13 years old. Examined at East Wheal Crotty, March 26, 1841:

Is employed buddling. Went first to work at Stray Park. at 9 years of age. He comes to work at 7, and goes at 5. Has task-work once a month perhaps. He went to day school before going to work at the mines, and since that has attended the Sunday-school at Penponds (Wesleyan Methodist).

I heard him read in the Testament; he read tolerably well, but could not explain the meaning of the word multitude, nor say how many apostles there were.

No. 53 (H. 21) *John Richards,* 13 years old. Examined at East Wheal Crofty, March 26, 1841:

Has been here for three years; is employed buddling; it is easy work. Gets up at half-past five in the morning. Has a task set him about once a fortnight, and can then leave work about two.

This boy wrote a little, and read. I also gave him some arithmetical questions, which he calculated mentally very well.

No. 54 (F. 7) *Henry Warren,* 60 years old. Examined at Camborne, March 25, 1841:

Went underground first when about 15, at Dolcoath about the adit level; was employed "rolling". He works now in North Roskear, at the 54-fathom level; has been in that mine for 17 years.
Do the boys always remain with you as long as you are at work? Yes; the boys are chiefly employed by tutworkmen, and work with one pair or another according as they are wanted; but they are not so much employed as formerly. He thinks that 15 or 16 is quite early enough for a youngster to go underground. He does not work himself' "double

stem". Used not to take anything to eat underground with him, and then often felt unable to eat alter his return, from faintness. Thinks the taking food underground a great improvement.
Has himself suffered from fast climbing. The labour of "tramming" is nothing compared with that of "rolling". Has never known of boys being obliged to cease from work of any kind from sudden illness.
Have you known of any accidents happening to boys underground?—I knew one about 16 fall away in climbing. This is the only accident to a boy I have known.

No. 55 (F. 8) *George Bailey,* 40 years old. Examined at Camborne, March 25, 1841:
Works at Dolcoath; has been there for 21 years with the exception of four months. Has remarked that those who have gone underground to work when very young have often been stunted in their growth, and have not made strong men. Considers that there is as much work done now for £1 as there used to be for 30s. He went underground himself at 15. Had worked at grass before. He has always found climbing the ladders fast the hardest work and that which did most hurt. When boys are "rolling" (wheeling stuff) together, if a stronger boy fills the barrow heavily, the younger ones will cry out. It would be a blessing if a school were provided for the children after they leave work. He has not known of sudden illness, nor of accidents happening to boys underground.

No. 56 (C. 1) *Richard Lanyon, Esq*., Surgeon. Examined at Camborne, March 26, 1841:
How long have you been professionally engaged in this neighbourhood? Ten years in practice, and five previously as an apprentice.
Your father had practised here for many years before? He has practised here for 45 years.
Can you give me an estimate of the average number of adult miners to whom you and your partners have annually contracted to give surgical attendance during the last ten years? I cannot say at all precisely, but between two and three thousand.
In what proportion have you attended the families of these miners? We never contract for attendance on the families, but we have had very extensive opportunities of observing the families while in attendance on the fathers. The females and boys have been also very largely attended by us under contract.
You have devoted particular attention to the extent and causes of ill-health among miners, and to their positive and comparative physical condition, and you have, I believe, received from the Cornwall Polytechnic Society three premiums for essays on those subjects, which are published in their reports? Two of the essays to which you refer are so published; my attention has been more specially directed to the condition of the adult miner.
Have you been led to modify in any way your published opinions? Not in any single point that I am aware of; they have been rather confirmed than otherwise. I have not collected any additional information or documentary evidence.
What do you consider to be the usual age at which boys begin to work underground? From 8 to 12.
Have you known many as early as 8? Not very many; from 10 to 12 is the most frequent age.
At what age is it usual for the children to begin to work at surface? About 7 very commonly; girls begin at the same age.
Have you noticed any change in the practice in these particulars? My impression is that they are put to work at an earlier age than they were formerly.
He has not seen disease distinctly caused by working overtime. Has not seen distinct disorder from the employment of any class of young persons. He considers that no females are more healthy as a class than those employed at mines.
Do you, judging from your experience, consider that accidents happen to boys underground from their weakness or natural carelessness, owing to their being employed at too early an age? I do not know that any arise from weakness. From carelessness some certainly do arise, but not more in proportion than among adults, to whom carelessness is a more frequent cause of accidents than any other.
Have you known any accidents occur from defects of strength in different ways, or other cause which might have been obviated by care on the part of the employers? None at all.
Is there any difference in kind in the accidents occurring to boys and those which befal [sic] adults? Perhaps a greater number of accidents from falling away happen to boys, but this is to be attributed to their being more employed in wheeling barrows, and thus getting too near the edge of the shaft or winze.
Do you know of any difference of frequency of accidents now and formerly? The difference is great in respect to those from blasting.
To what do you attribute this difference? To the introduction of safety fuse.
Have you noticed any particular consequences from the working of children at a very early age underground? They are often pale and stunted in their growth and various forms of scrofulous disease appear among them, affections of the eyes for instance; though extreme cases are rare.
The men employing boys are not, I believe, much interfered with in their treatment of them; do you consider time boys exposed to ill-usage in consequence? They are not at all oppressed.

Do you consider the children and young persons employed in the mines in your neigh-hood [sic] better or worse in physical condition than others in the same grade? Those employed at the surface are to the full as healthy as those belonging to any class of labourers. Those underground do not look so well, but I am not aware that they are very distinctly less healthy. It is probable, however, that the seeds of disease are often sown at a very early age when they go underground. The atmosphere which they breathe is the most influential cause of mischief, the deprivation of light, the nature and duration of the labour, and its interfering with the natural hours of rest, contributing to the injurious result. There is a manufactory of safety fuse, near Camborne, at which young females are employed; he finds their health by no means so good as that of the girls at the mines. There is, on the whole, a remarkable exemption from deformity among all classes of mine labourers. Hernia is not at all more frequent among the adults than usual, it is very rare among the boys, and almost unknown to himself among the females.

He has only known two epidemics of fever since he has been in practice. No peculiar prevalence of the disease among the mining class was noticeable.

He thinks he has observed distinctly a debility of constitution among those who have gone underground very early; say from 10 years of age; so that they have been inferior in vigour to the average at the age of 17 or 18. He does not think that any mischief, distinct from what would happen to adults under similar circumstances, occurs to boys who go underground first at 14 and upwards. No other disease is occasioned but phthisis, except that affections of the stomach are frequent before the age of 30. From 25 to 35 the miner enjoys very generally in this neighbourhood an almost entire immunity from disease; afterwards the affection of the chest creeps on insidiously. He has not observed in his practice that there is any prevalence of acute phthisis between 18 and 25. Hoemoptysis among young miners has been a rare occurrence in his experience. He thinks there is a comparative immunity from diseases of the skin.

The very slight knowledge of culinary work possessed by the young women leads to a crude and coarse preparation of the food of the miner, which is one cause of the disorders of the stomach. There is considerably less drinking than formerly. The practice of smoking and chewing tobacco is still prevalent. He has known several cases of stomach disorder relieved by the discontinuance of this practice. The younger boys do not usually follow it.

No. 57 (I. 15) *Michael Loam Allen Nicholls,* 11½ years old. Examined at Truro, March 31, 1841:

Is employed as engine-boy at the United Mines. Has been there these eight months. He received a blow from the handle of the engine whilst brushing out the place. Boys are not usually employed so young about the engine.

No. 58. (I. 16) *William Bennett.* Examined at Truro, March 31, 1841:

Works at Wheal Kitty in St. Agnes, in the 12-fathom level. He went under-ground when 11 years of age in Polgooth; worked at the 30-fathom level. Was chiefly employed in wheeling stuff (rolling). Went to work "at grass" at nine. Had good health. Was employed watching the stamps, in which he was exposed to the wet; being 13 hours at night, from five in the evening to seven on the following morning, two weeks out of three, thus engaged; taking it in turns with a comrade to watch, and lying down about the boilers or some warm place to sleep every three or six hours. But he did not suffer from this. Had worked underground about six months at Wheal Kitty when he was taken bringing up blood. This happened about 10 months ago; he was relieved by treatment. and has continued to work underground, but has had one attack since, besides that for which he now applies for advice.

No. 59 (1. 17) *Henry Roberts*, 36 years old. Examined at Truro, March 31, 1841:

Works in Wheal Coates Tin Mine, St. Agnes, at 75 fathoms from surface. He went underground when about 13; was two years at grass before that. Has worked in the St. Agnes mines for the last seven years; before that in Gwennap. When young he worked about 60 or 70 fathoms under the adit. He only suffered once, which was from going through cold water. Has been driving an end where the air is close. Has thought the mine unhealthy. Finds it cold. The water is very cold. Most of the men complain of having colds, and the boys the same. He works only in the day; this is the case with almost all the "pairs". Has a tumour in the neck, and feels pains about the side.

No. 60 (I. 18) *Christiana Morcom*, 53 years old. Examined at Truro, March 31, 1841:

She first went to work at about 10 years of age, in the Gwennap mines. She did not suffer much until about 20 years ago, when she was seized with lumbago, which she imputed to the hardness of the work. She has been affected with this and other pains more or less ever since.

No. 61 (I. 19) *Jane Jewell,* 21 years old. Examined at Truro, March 27, 1841:

Worked a fortnight at Consols, but found she could not continue. She has always found that the "ball" (mine) disagreed with her, which she attributes chiefly to the mundic

water. The smell made her sick when the water was warm. Her father is a miner at Consols; is in a declining state; about 50 years of age.

Tin Mine (No. 1), CARNON

No. 62 (E. 8) *Mr. Nicholas Sampson Cloak,* 31 years old. Examined at Carnon Consols Mine, March 30, 1841:

Is clerk of the mine. Has been here six years in the same capacity. Was previously for about ten years in the same way connected with different copper-mines. This mine is a sort of underground stream-work; the over-burden was too thick to be removed; it was therefore determined to drive underneath it, and the bed of tin stuff is removed altogether, and after being brought to the surface is treated in the same way as other stream tin. No change has taken place within his recollection in the ages of the young people employed, or in the kind of work to which they are put.

Is there any method used by which the time of their labour is shortened? No; our hours for surface labourers are from seven in the morning to half-past four in the evening. In winter they do not work when the light is not good; the stuff is too valuable.

Is any work done at any other hours on the surface? They often work out of hours in picking any stones of tin (shode) from the rubbish, especially after spring tides, when the heaps being washed by the sea the stones containing tin can be better seen: they have for these 1s 6d a barrow for small, about the size of a potato, and 9d for large; this the boys have for themselves. Last month they obtained among 24 boys 16 barrows at 1s 6d, and seven at 9d, which is about the usual quantity. This is chiefly done at dinner-time; they almost always run away home when the bell rings at half-past four.

Is any difference made according to age in the time of underground labour? No; men and boys work alike six hours at a time. The 24 hours are divided into four courses, and the day and night "cores" are taken by all in succession, changing every week. The boys always continue at work the same time as the men. They never work more than the six hours, except in case of accident, which is very rare, as we keep a man who has nothing else to do but to see that the wood-work is in proper repair.

What time is allowed for meals? Half an hour at noon is allowed for dinner at all seasons. There is no time for "crowst" (lunch). I do not remember to have met with any such practice; it is, I believe, very unusual. No work is carried on here at dinner-time.

If they eat their dinner on the mine is any accommodation provided for their doing so in comfort? They have the use of a couple of' small houses to eat their dinners in, and there is an oven connected with the furnace for them to warm their pasties; they are also allowed conveniences for getting hot water and making tea, which many of them make with herbs. I have observed their pasties; they are usually well provided with meat: the hoggans are comparatively few.

Is any superintendence exercised to guard against the employment of boys underground who are too young or too weakly for that work? None; but it is needless because, the tributer being only allowed *one* boy, it is his interest to employ a strong boy. In this mine the tin-stuff is very nearly of the same richness in one part as in another, and the wages of the boy can be calculated accurately in "setting the pitches". This was done last time for twelve months. The term for which they were set before was usually two months.

Is there any distinction between the employments of boys and girls? In this mine there are very few girls; only four altogether; they are all employed in "racking."

There are no acknowledged holidays besides Good Friday and Christmas-day; but Whitsun Monday is generally very nearly a holiday. The parish feasts are kept, but no time is usually lost.

The health of the boys and girls has been on the whole very good; much better than in any other mine which he is acquainted with.

The under-ground boys pay 6d a month, 3d for the doctor, and 3d for the club, for which they are allowed 15s a month in cases of accident.

Thinks that 2d a week could be afforded out of the wages of the children for their education.

No. 63 (H. 22) *Charles Manuel,* 16½ years old. Examined at Carnon, March, 30, 1841.

Has been here about five years. After being two years at surface-work which was light, he went under-ground. He did not suffer from the work at grass. Underground he was employed "rolling" (wheeling barrows). He soon began to feel a pain in the breast, which he attributed to the air and the damp chiefly. He continued to work for nearly two years, when he was obliged to be put into the hands of the doctor; was ill then for three weeks; after this he returned to work, but was obliged to give up again in a week, and was confined a fortnight. After this he worked at the surface only, and has scarcely lost any time since. When working under-ground he was forced to go into the end of the level for the stuff, when he drew in the ''poor air''; afterwards he would spit black stuff; many of his companions did so. He met with one accident from the falling of a stone from the side of the level on his arm. He only worked overtime three times whilst he went underground. Other boys did so more frequently. He knew of a boy working five double stems out of six days last week.

He has gone to an evening school during the winter months. Paid 3d a week. He learnt reading and writing. The Bible and Testament were the books used. No instruction by questioning was given. He did not find that he was tired by his work so as not to be able to attend to his schooling. He went to school at half-past six and stayed till half-past eight. Got to bed about ten, Gives his wages to his father.

He reads pretty well.

No. 64 (D. 2) *Mr. Phillips*. Examined at Camborne, April 23, 1841:

Has kept a day and an evening school at Tuckingmill for about a year; was previously engaged in the same way at St. Ives. Has instructed a great number of boys belonging to the mining class. Has paid much attention to mechanical contrivances as adapted to facilitate mining operations. Has obtained several premiums from the Polytechnic Society for inventions of that kind. Has about 40 boys in the day-school and 12 in the evening-school. The day boys pay £2 or £3 a year; the evening scholars 5s a quarter. This payment is not remunerative, but intended as an inducement to attendance. The school is opened about seven in the evening four days in the week. The boys are allowed to stay till about 10 o'clock if they choose. He does not find that they are at all incapacitated for schooling by having worked during the day. He even considers that more progress is made in an equal time by those who work than by the unemployed.

Mr. P. examined some of his day boys, who were in attendance at the evening school, for my satisfaction. They worked questions in mensuration, geometry, dynamics, some of them of considerable difficulty, very quickly and correctly. The evening-school boys had not been long enough with him to be perfect in their subjects. They looked well and quite fresh at their work. Two or three of them were youths, working underground a few hours before; two others employed at the surface, and had only changed their clothes since they left work; these were not in the habit of getting their evening meal till they returned from the school, which would bring their bedtime to 10 or later; and they must rise before 6 in the morning. The underground lads could only attend on alternate weeks, as they worked at night "in course". The other boys were either smiths in the foundry, or the sons of persons in rather better circumstances. All were in different parts of arithmetic, mensuration, &c. Mr. P. occasionally shows them a few experiments in physics, and was about to secure the attendance of a lecturer on chemistry.

No. 65 (B. 2) *Rev. Samuel Dunn.* Examined at Camborne, April 23, 1841:

Is a Wesleyan minister. Has been here nearly three years. Was previously employed as a minister in Edinburgh, in Manchester, and in a rural district in Yorkshire. Was familiarly acquainted with the condition of the labouring classes in those several places. He thinks the miner better provided than the average of labourers in either of those localities. He considers the irregularity of the miner's hours of coming home a material occasion of the defect of domestic comfort. Is rather fearful that there has been a declining condition of morality and religion during the last year. More lads and youths, as appears to him, are lounging and playing about the country on the Sunday. Sometimes they will play at ball in the neighbourhood of the Sunday-schools, giving a very bad example to the children as they come out of school. This class of young miners is by far the most audacious. He expects much benefit from the police just established. He does not think that there is any great extravagance in dress among the young women, speaking specially of those who belong to his own congregation, who are very numerous. Has heard of the existence of clubs among them for the purchase of garments, but believes they are rare. Want of means for dressing their children as well as their neighbours do theirs is the reason commonly assigned by the mothers for keeping them from Sunday-school. He thinks that there is not so much family union as among the rural population, which he chiefly attributes to the knowledge possessed by the boys of the amount of their earnings; so that they feel independent at an early age, and often act accordingly. He believes if it were not for the moral influence of the Sunday-schools it would be scarcely possible to live among them, looking to the characters of those young men before mentioned.

Copper and Tin Mine (No. II), Dolcoath

No. 66 (E. 9) *Mr. William Petherick.* Examined at Camborne, April 23, 1841:

Is one of the principal managers at Dolcoath.

There is, I believe, a peculiarity in the arrangements of your mine, in the provision of some warm nourishment for the men and boys on their coming to the surface; be so good as to describe its nature and effects? We have for the last five years provided hot soup for the men and boys on their coming up. It is given out in a place adjoining the blacksmith's shop, into which the footways open. It is continued as late in the spring as the men wish it, but is chiefly taken in the winter months. It does not cost I believe more than 40s a month. Four persons are employed to give it out; two by day and two by night, which is a greater expense than the soup itself; our men being coming up at all hours of the day and night, this arrangement is necessary. Two places for giving it out were also required because of the distance of the different parts of the mine from one another. In the first place there was only one delivery, and it was found that men who came

to the surface at the other end of the mine were not disposed to walk so far out of their way as they were obliged to do to get some soup. Two stations, one east and the other west, were therefore established. The houghs and faces of beef are stewed down in a digester to make the soup. The men say they never feel cold when they take it. We conceive that there have been much fewer cases of consumption on the club since this practice has been adopted.

You mention cases of consumption in connexion with the club; it is, I believe, unusual to relieve the sufferers from its funds? It is so; but it is our practice to do so. Our club is comparatively rich. having a fund of £1500, and our contributions are larger than usual, being 6d in the pound of the gettings; 1d in the pound is also deducted from tradesmen's bills for the benefit of the club. We do not give assistance in cases of fever or other acute illness, except under circumstances of poverty. The agents have also the power of assisting from the funds of the club any miner who is known by them to be straitened: they are often informed by a man's partners that his meat is not good, or that it is insufficient, or that he has none. Widows and mothers are often assisted long after the death of the husband or son. Some have received altogether £100 or more.
The ventilation in Dolcoath is particularly good; and the men are healthier than in most other mines: there are more old miners.

A great many of our miners get houses and little plots of their own. Some raise the stone requisite for their own houses in the first place, and sell as much more to a mason as he will agree to build their houses in return for. Then they will mortgage the house at Hayle for timber, iron, and so forth. Some again will build, roof, plaster, and do the carpentering themselves with very little assistance. Those who have been fortunate and have saved money may buy a place ready built, with some land already brought into cultivation. The land is let on three lives, at a rent proportioned to its quality and other circumstances, varying from 5s. to £3 an acre. We tried the plan of not giving pay from the club in cases of slight accident, till the "taking" (contract) had expired, with the view of avoiding the inducement to deception; but the partners complained of this, and now the pay is given; though sometimes, when the take is poor, the hurt is made the most of. There is a general combination to deceive the agent as to the hardness of the ground, and other points. so that the most advantageous terms may be obtained. Our ladders are about 2½ fathoms in length, generally, with staves one foot apart. We use oak staves; old ship oak we find the best. We formerly used the hafts of the picks and other tools, but found these unsafe, the wood being sleepy and flawed, and sometimes breaking off in a moment, without having shown any outward sign of unsoundness. Iron staves, besides being at times very slippery when acted on by the copper water, are apt to be corroded, so as at times to cut the hand. We have had no accident on our footways for a long time. A great subsidence of the ground took place in the mine some years ago, where it had been hollowed by the old workings. It reached to within a short distance of the surface. A million and a half of tons are calculated to have fallen in. We filled in half a million tons at the cost of £10,000. Fortunately the men who would have been endangered were on the surface, and no lives were lost. Very few accidents now arise from explosions. Now and then there is a delay in the communication of the fire, even with the safety-fuse; and the men, being impatient, go too soon to the spot, and the charge is fired before they have time to retreat. This used to happen frequently; sometimes apparently from too tight tamping.

I went round the mine with Captain Petherick. The rooms in which the soup is given out communicate with the smiths' shops, and are situated at two distant parts of the mine. It is prepared at only one of these stations, in two or three digesters, which are cleaned out about twice in the week; the meat is then found to be almost entirely dissolved. Some Swedish turnip cut into small squares is the only vegetable addition. I tasted it, and found it very palatable, though the quantity of pepper had been reduced; salt was at hand for those who liked to add more. I saw several men and boys who had just come from their work below take their allowances of soup on benches around the room; half a pint was given to each in a tin can, at a temperature little short of boiling; they said they found it very restorative. The changing places are galleries around the shop; a chimney, formed by a large iron tube a foot and a half or more in diameter, is conducted along this gallery, and, conveying the warm air and smoke, is sufficiently heated to dry the clothes which are hung. around. Near at hand are chests for their stores, tools, &c.

I saw in the shop two old men, whom I questioned. The one was 71 years of age, and had been a miner all his days, for 60 years. He had generally worked in this mine, having only left it during a period of 10 years, when it was suspended; at this interval he went into the mines of Wales, Devonshire, and other parts. He said he had suffered very little ill health at any time or in any place. The other, who was within a few months of 80, had been chiefly employed in husbandry, and had been very little underground. For the first 30 years of his life he had hardly known what it was to be well. There was very little apparent difference of age between these two men. Both were employed, or rather amusing themselves, with some light work. C. B.

Copper and Tin Mine (No. III)

No. 67 (E. 10) *Mr. Joseph Vivian.* Examined at North Roskear Mine, April 24, 1841:

Is principal manager of this mine. He thinks that the arrangements for drying the men's and boys' clothes, and for enabling them to wash freely in warm water, have preserved them

from colds. With respect to mine-clubs, he is not an advocate for deductions from the wages of the miners for the purpose of forming a fund for their relief in cases of accident, as is commonly practised; for, if the mine should fail, the money is lost to the contributors, if they have not met with any accident before. He encourages them to join benefit societies, and believes that there is scarcely a man in the mine who is not a member of one of these at least; many belong to two or more. He tells them that if they do not assist themselves in this way they shall have no help from the mine. The men and boys employ their leisure hours in the cultivation of their gardens and the potato-plots, which they get from the farmers in return for the dressing. We prefer men who have no more land than these plots to those who have some acres. The latter do not give their attention so fully to their work at the mine, and are besides constantly in want, of different little matters for their farm; a few nails, a bit of iron, timber, and so forth. Part of their spare time is spent by the miners in mending their shoes. A man would think it a disgrace not to be able to do this. They do it as well as a cobbler; the father teaching his boys. In the way of tailoring they have no great skill. Many men here take away £8 or £10 monthly, having their children employed. When they have had good ''takes" the more prudent invest their money in some way, often in building houses. The savings bank at Redruth is at an inconvenient distance; much more would be deposited if it were near at hand. We use no cheques for the payment of any of our people; a large proportion of what is due is paid in gold and silver, and the bank being at hand the notes can be readily changed. The paying of all is completed about one o'clock on Saturday; once a month for the surface labourers, and every other month for those under-ground; but a certain amount is allowed for "subsistence" to the latter, and for the payment of the boys. Here we generally give £2 for "subsist''; and we are not particular as to the value of the work done being more than equal to what is allowed, provided we consider the men "a good pair". Some will have in this way £20 in advance before their "pitch" turns out profitable enough for them to live on their gettings. We have no drinking bouts after pay-day; all come to their work on the Monday as usual: if they did not they would be soon discharged. We never allow a man to leave his place without leave; if he wants a day he is to ask his captain, and there is generally no objection. Smoking is not nearly so prevalent as it was: it is hardly ever practised by the boys. I have never any trouble with any class of persons employed here; they are very orderly and well-conducted. We have had a few cases of dishonesty, chiefly the stealing of candles. Some time ago we offered a reward of £5 for the detection of the thief, and a man was caught in the act by two others who were watching for him; but they foolishly let him get out of their sight, and he absconded, and has not since been heard of. The men now contribute 1d a month each towards the British School at Camborne, and have the privilege of sending one of their children to the school without further payment, and their other children on paying 1d a month with each.

The arrangements for drying the clothes, and supplying warm water for washing, are in this mine particularly excellent. The smith's shop, in which the first object is effected, is very roomy, and a convenient method for placing the clothes which are more than commonly wet, near the forges, has been contrived so as to avoid all risk of burning. The galleries in which the changing of clothes takes place are likewise spacious. These are in the smith's shop, and entering from it is the room in which the miners wash. This is of considerable length, but only wide enough to admit of convenient standing space between benches placed against the walls and the bath, which extends from end to end, divided at distances of 4 or 5 feet into separate compartments. I saw a number of the men and boys making use of these accommodations just after they had come to the surface. They stood for the most part on the thwarts which separate the baths, and stooped forwards to wash their arms and legs; but I was told by Captain Vivian that they frequently get into the baths, which are about 20 inches deep, and give the whole body a thorough washing. Men and boys spoke of the arrangements as very conducive to their comfort. The water is of a pleasant temperature, from 80o to 90o Fahrenheit. After these ablutions they proceed into the smith's shop and put on their ordinary dress. C. B.

No. 68 (F. 9) *Richard Trezona*, 52 years old. Examined at North Roskear Mine, May 1, 1841:

Has been at this mine 4 years. Went underground first in Cook's Kitchen, at the age of 13. Has always worked in this neighbourhood. Has been on tribute 25 years and upwards. Has worked in "poor air'' a great deal. Was once insensible for some time from "poor air". Has found advantage from the coming up into the smith's shop. Has heard the men speak of the good effects of the soup at Dolcoath. Would rather have warm water himself to wash in than cold, a great deal. Has seen little of meeting for carousing of late years. They call it here "going to have a pint"; it used to be the custom "to go to have a pint" on Saturday evening, when they had beef and drink at the public-house. He has got three acres of coarse ground at 17s 6d rent for the whole. The charge for putting up a fresh life would be about £20. He has seven girls and one boy; has had 12 children. Is himself the fourteenth child. His father died about 77; was a miner all his days; he worked underground till he was 75. His girls all go to work, when they can get it; the boy is younger, and puny. The girls have all learnt to read, and the eldest can write a little; they all continue to attend Sunday-school.

No. 69 (F. 10) *William Richards*, 46 years old. Examined at North Roskear, May 1, 1841:

He went underground first at Dolcoath, at about 10 years old; worked then 15 fathoms under the adit. Has worked underground ever since; always in this neighbourhood. Has never been the worse for "poor air". He worked for three years in the 201-fathom level at

Dolcoath. Has been here a dozen years. He thinks the coming up into warm air, and the washing in warm water great improvements on the old system. He thinks the men much more orderly than they were five years ago. The change is greater within the last five years than before. He has had 21 children, and has 12 alive. He does not know any great difference between iron and wood staves; has never known the iron hurt the hands.

No. 70 (F. 11) *Simon Vivian,* 88 years old. Examined at North Roskear May 1, 1841:
Has been always a smith. He went to work at 11 and left work at about 63. Since that has been a foreman smith, keeping accounts and looking after stores. He does not think there is so much drinking now as formerly.

I saw this old man performing his duties as clerk very efficiently. His hearing was very dull, but he appeared otherwise in full possession of his faculties, and very healthy, his habit of taking a glass of rum and water notwithstanding. C. B.

No. 71 (I. 20) *Jacob Turner,* 17¼ years old. Examined at Truro, April 21, 1841:
He works at the Carnbrea mines. He went under ground about nine months since: worked at the 70 and 80 fathom levels. Was very well till he changed to the 50-fathom about four months ago. It is very cold: the air was very bad for a fortnight. Considers he caught. cold. Has a cough, with expectoration. "My heart seems as if he would jump out of my body". "I could go down pretty well, and work pretty well, but when I came to climb the ladders that was the hardest work". "I bleed to the nose when I have a rage of cough." He worked at the stamps, and other surface-work, and at husbandry, for many years before he went under-ground.

His mother, who brought him for advice, says that his father died of consumption at the age of 48; and that two of his sons, one 23 and the other 24, who were miners, and a daughter who was in service, had been carried off by the same disease; the latter at the age of 29. She has two at home; a boy and a girl, who are twins; they work at the mine. "Poor air, I believe, done for both the young men, and their father before them. Coming up the ladders their hearts was bursting".

This boy is phthisical. C. B.

No. 72 (I. 21) *John Cobbledick,* 37 years old. Examined at Truro, April 21, 1841:
Has worked underground about 16 years; chiefly in the northern mines. The air in them is generally good. Has been laid up for six weeks with a bowel complaint (diarrhoea mucosa). Went about a week before he was taken into the bottom of the mine, where a candle would not burn. Worked then in the Cornubian Lead Mine. Has good health generally.

No. 73 (I. 22) *Richard Williams,* 45 years old. Examined at Truro, April 23, 1841:
Works in Wheal Jewell. He went under ground about 11 years of age, and has continued ever since. He never had any illness worth notice till about Christmas last, when he went to work in 56-fathom level, driving towards Wheal Gorland. The end was 170 fathoms from any draught of air. The air was so bad that you could not burn a candle for four hours together. He "felt the air scalding down his throat; burning as though it had been hot water in his stomach". He stood it for five weeks, on account of his four children being employed in the mine, and his being afraid of their being turned off if he did not continue. None of his comrades stood the work more than a fortnight: the party was changed three times in the month, excepting himself. Has brought up blood since, and now suffers from cough and weakness. He has expectorated black and slate-coloured stuff.

Copper and Tin Mine (No. IV)

No. 74 (E. 11) *Mr. Ellery,* 45 years old. Examined at Wheal Friendship, St. Hilary, April 17, 1841:
Is employed as under-ground agent. Has been in this mine for three years. Has been in this neighbourhood at Wheal Fortune, as an agent. He first went under ground at 25 years of age. Was previously at sea, in the packet service. The greatest depth at which this mine is worked is 100 fathoms from surface. The ores are worked by tributers, and dressed by the adventurers. We raise about 200 tons a month of copper-ore, five or six tons of tin, and a small quantity of lead. The mine is in Killas. In some of the western parts of the mine the air is not very good. She is not very wet. Boys are employed in wheeling the stuff under ground; there are no trams. No accidents have happened to children. The hours for surface-work are from 7 to 6, and from 12 to 1 for dinner. There is pretty much task-work. Does not know how they manage with their parents as to the pay they receive for extra time. Underground they work three "cores". The boys generally work by day, the stuff not being required to be immediately removed. There are crushers" on the mine. The boys and girls are all paid monthly by the adventurers. "Hoggans" are rather more common here than

pasties. Those who live near have them and stews very often brought to them warm by their friends. Capt. Ellery has not found any difference in his health in consequence of his change from a sea-faring to a mining life.

Tin Mine (No. II.)

No. 75. (E.12.) Mr. *Reed.* Examined at Wheal Vor, April 80, 1841:

Is one of the principal agents managing the mine. We have 600 or 700 employed under 18. The successive employments are: 1st. Packing, which is done under the shed; 2nd. Trunking, buddling, and wheeling slime. A great many girls of different ages are employed "framing". Very often at the age when the boys cease to find employment on the floors, as they are not equal to the under-ground work in this mine, they go off to shallower mines, We encourage able men; it being more for our advantage to do a good amount of work. We have not a score under 18 underground. This is owing to our having little or no work at shallow levels. We are only working the lode from the 214 to 236 fathom from adit. The adit is 25 fathoms from the surface. The work under-ground is done in four six-hour courses. They relieve each other "in place". They are very attentive in not leaving their work till relieved by the next pair. The hours on the surface are from 7 to 6; in winter, daylight. An hour is allowed for dinner usually; in winter, half an hour. There are some few tasks; not probably once a month to each individual. They scarce ever stay after six. On Saturdays they leave work at half-past four. Good Friday and Christmas-day are the only holidays. Our first-class girls, who are employed "framing", are allowed 1s a month premium for working the whole month, without losing any time, and the second class at the same work 6d. The girls meet together to eat their dinners; they generally get them warmed; and very many get a cup of tea, or hot water. Those who live within a mile or mile and a half often have stews and other things sent them warm, and a family party meet together. Barley is very much less used than formerly.

We have had one death, and a leg broken from the undermining of a slime-heap by the boys themselves.

The tin is smelted on the mine. From the calciners, of which there are two, a flue is carried for about 130 fathoms horizontally, and in this the arsenic is collected: to the top of the stack in which it terminates it is 300 yards in length. Formerly the fumes were discharged in the midst of the mine, and great harm was done; bowel complaints especially were very frequent; the whole place was often filled with a suffocating fume at that time. The boys and girls go to the parish feasts. They often manage to obtain some liberty, by arrangement with the captain of the dressers, without losing time, but they will rather lose time than not go, if they are allowed. They are employed essentially by the owners. They are paid on the evening of the last Friday in every month, in small change. The men are paid on the Saturday morning following in £5 notes with a certain proportion of change. They are obliged to have recourse to shops, public-houses, and the market, to procure change of the notes; which is only to be done at the price of some deduction. The young people do not earn anything for themselves. We have had very few complaints of the tributer not paying "his pair". We have here always a month's tin-stuff belonging to him in hand, so that he would be a loser were be to leave the boys unpaid and to quit the neighbourhood. We very seldom have complaints from the parents of their children keeping back any of the money. No one, except tributers and tutworkmen, can leave the mine without giving a month's notice.

Do you consider the children and young persons employed on the surface in your mine better or worse in physical condition than others of the same age and class in the neighbourhood who are otherwise employed? There is no great opportunity of comparison in the immediate neighbourhood, for almost all the young people are employed here or at other mines it is indeed difficult to obtain the services of boys for other purposes, but I consider them to be much better off than others, being free from coercion, and having regular hours of closing work.

What has been your general experience of their moral character in your mine? There have been very few eases of dishonesty, and very little swearing. There is a line imposed on those who are guilty of drunkenness, swearing, or fighting.

Is much coarseness of language observable among the females? There is room for improvement in that respect.

Do they marry at a very early age? The women not so much so as the men.

Do they prove domestic wives and capable of doing all that a labourer's wife in the neighbourhood usually understands? They are very deficient in domestic knowledge; very little attention is paid to anything but dress after their work is over. They are pretty steady at home. We had a man married a few days ago without bed or board being provided, but that is not usual among them.

The old system of "keeping company" is followed very commonly. There have been a great many cases of desertion among the miners, and there is reason to fear that there is not a very strong feeling prevalent among the body at large of the dishonourable character of such conduct. One of our miners has had two natural children by two different women within six months.

He went under-ground himself about 12 years of age in St. Agnes. When about, 14 he worked in "poor air" and became affected with shortness of breath and other symptoms usually threatening consumption, so that the surgeon told his father there was no chance for

him; but he had a strong impression on his mind that a physician who then attended the Cornwall Infirmary could cure him, and he in fact recovered under treatment there. After this he continued to work under-ground till he was 24, often 16 hours together, and in the worst places for the sake of higher gettings; he always, however, avoided "poor air", and since he has been an agent he has been cautious not to stay longer than business required where the air was bad. He was employed as agent in some large mines in county Cork: he found the Irish, of whom they employed about 700, very tractable. Some Cornishmen whom they had over when the ground was soft were very unmanageable; it was found necessary to make a rule that going to a public-house should be punished by dismissal; this checked their misconduct. The Irish did not begin to work till they were 17 or 18 years old; they did not seem to feel the effects of working in "poor air" in these mines nearly as much as our Cornish miners did.

When he came to Wheal Vor, two years ago, the men were in the habit of spending the Monday following their pay-day, and sometimes a day or two besides, in drunken rioting, so that it went by the name of "Bad Monday". Ile told them that if they did not keep to their work he should send them about their business, and get those who would. This kept them pretty steady; but a short time since, on his being called to some distance. they took advantage of his absence, and returned to their old practices; when he discovered this he fined them a guinea a man. These measures seem nearly to have put a stop to the custom. He considers the miners at Wheal Vor to be less steady and industrious, out of work-hours, than those to the eastward. The neglect of the Sabbath-day is greater than anywhere else that he knows. There is a good deal of small pilfering from the mine, and poultry stealing: some who are well known as depredators are not informed against. He thinks it would be very difficult to obtain from them any account of their household expenditure. A gentleman of great influence in the mine tried to make inquiries of that sort among them without effect. Thinks they would object to any charge for education.

We have within the last three months, established a forge at 245 fathoms from the surface. We keep three smiths and a boy with each employed at it, working 12 hours in 36. We find that for every hundredweight of coal carried down we save the drawing up of two tons of tools and other articles, besides saying much time. The smoke is carried off through the old workings, so that it cannot be perceived in any part of the mine; the smith remarked it was the most airy forge he ever worked in. The men are much pleased with their forge, their tools being sharpened on the spot, and their time and labour thus economised. I had seen these under-ground forges at the Irish mines in successful operation, which led to my recommending their introduction here.

Many of our boys and girls come from a considerable distance, frequently not less than three or four miles.

No.76 (E. 13) Mr. *Wood*, one of the clerks of the mine, who has paid much attention to the condition of those employed, **examined at Wheal Vor, April 30, 1841,** states:

That ammorrhoea and chlorosis are very frequent here, and are commonly severe, and sometimes fatal. He has been disposed to attribute this to the exposure of the young women to the steam of warm water, especially in "framing," which is the employment of a great number. The water used on the surface in this mine is all warm, having been used for condensing, and is as much economised as possible, being all obtained artificially. He says there is a great deficiency of education; there was a school connected with the mine some time ago, but it has ceased to be so, and it is not now very much frequented by the miners' children. There is no evening-school of any value in the neighbourhood; he had never seen any school successful in which the instruction was quite gratuitous, except one at Crowan, in which rewards were distributed, according to the taste of the children, with great profusion, by the late Sir John St. Aubyn. A school now kept by his brother in a village not far distant succeeds much better in consequence of his charging a penny a week, than it did when kept by his father, who charged nothing; it is an endowed school, but the parents think that they pay for their children's schooling now. He is of opinion that the number of illegitimate children in this neighbourhood has by no means lessened since the new law has come into operation, but many children are kept at the friends' houses, and not made chargeable; the thoughtlessness of the girls is the general cause of the misfortune; marriage is almost universally their expectation.

No. 77 (E. 14) Mr. *Oates,* another agent at Wheal Vor, said:
That he thought the air was more hurtful in granite than in killas (slate); he had himself been much affected; his breath had become so short that he could not walk many steps up-hill without panting. This was when he worked in mines in granite, and he had consequently quitted the granite, and come to work in the killas, since which he had felt nothing amiss. The staves of the ladders are in this mine a foot apart; he prefers short ladders to long ones for climbing.

Lead Mine (No. 1)

No.78 (E. 15) *Mr. Middleton*. Examined at East Wheal Rose Lead Mine, April 27, 1841:
Is a principal agent managing the mine. The greatest depth at which the mine is worked is 76 fathoms from surface. There is a great deal of water, and the consumption of timber is very large.

No change has taken place within his recollection in the ages of the children employed in these mines, or in the nature of their employment. The hours of work on the surface are from 7 to 5; from 12 to 1 is allowed for dinner, and a few minutes for "crowst" when they like. They very often have tasks set, by which the duration of the labour is shortened; this happens once or twice a-week, probably, on the average. They get away at two, three, or four o'clock, sometimes earlier. The elder girls will at times continue to work on their own account. Now and then at sampling they continue to work after the regular hour of closing; when this is the case they remain one and all, and the time is allowed another day.

Mr. Edward Michell, the purser of the mine, said that the men in the neighbourhood were by no means a good set, and that constant inspection was requisite to prevent thefts.

No.79 (H.22) *Richard Bishop,* 16 years old. Examined at East Wheal Rose, April 27, 1841:
Has worked here a twelvemonth at the 30-fathom level. He worked before at Gonavern [sic] and Wheal Elizabeth (lead-mines). He went under ground first at about 14; had worked at surface from about seven years old in the old workings of this mine. He went to a day-school before he went to work, and afterwards attended an evening-school for three months at Zelah (a neighbouring village). The school was given up from the master going to prison for debt. He did not learn to cipher; the school was open five evenings in the week; he paid 3d a week. He works six-hour courses, changing once a week; he is employed rolling (wheeling barrows); they arc 40 fathoms from the shaft to which they roll, and six fathoms from the winze. The air is pretty good; the place is very wet; he has not suffered in any way from his work, either to grass or under ground; they do not work overtime. He takes a crust down with him, and gets his meals after he comes up. He lives two miles and a half from the mine. Would be very glad to go to evening-school if he could. He works sometimes at tilling potatoes for his father, on a small allotment.

No. 80 (H. 23) *Joseph Roberts,* aged 14 years and 9 months. Examined at East Wheal Rose, April 27, 1841:
Has been down since seven o'clock (now half-past three); generally comes up about three. He works with a tutworkman. who is driving an end upon the course of the lode; his work is rolling stuff; his wages are 24s a month; is in a dry place; it is about 30 fathoms from shaft or winze, and after working three or four hours the air becomes dead; he feels sometimes that lie cannot draw his breath; he spits black stuff, sometimes with cough; does not feel pain in the breast. There is a good deal of powder-smoke, as the ground must all be removed by shooting (blasting); He has worked under ground for about six months; before that three years ''to grass''; was very well at both employments. Ile takes down his dinner with him, generally pasty; they do not send down any water in this mine; he does without it; is very thirsty sometimes.

No. 81 (H. 24) *Edward Mitchell,* 16 years and a month old. Examined at East Wheal Rose, April 27, 1841:
Has worked under ground here for a year; previously at the Cornubian and other mines for three or four years. Has felt nothing from his underground work at any time; does not work at night; generally goes down about eight in the morning; works with one man; is working at the 20-fathom level, "rolling". He takes his pasty down with him; it is generally made with some pork in it; does not feel thirsty, though there is no water to be had. He learnt to write at a day-school kept by the parish-clerk at Penanzabuloe [sic] Churchtown; He has lately begun an evening-school, for which he charges 1s 6d a quarter; he has not gone to this, because his father is ill, in a decline, and he has to till potatoes and other things. Has a little cold.

This boy's appearance indicated predisposition to phthisis. His voice was hoarse.

No.82 (H. 25) *Thomas Chapman,* 15 years old. Examined at East Wheal Rose, April 27, 1841:
Has been under ground since eight in the morning: comes up about two P.M.; works with a tributer; has been at the 30-fathom level, "rolling". His wages are 30s a month; he has been underground about 14 months; only worked two or three months at grass. Takes down his dinner with him; does not get any drink. The air is good where he works; he spits a little sometimes; does not feel any tightness of breathing; finds it suit him as well as grass-work. He does not often work at night.

No.83 (F. I 2) *Thomas Trebilcock,* 44½ years old. Examined at East Wheal Rose, April 27, 1841;

He is employed in sump and pit-work (looking to and repairing timber-work). Has worked here above four years; has worked in lead-mines nearly all his time. He went underground first at about 17 years of age; has never suffered from any illness: the air has been generally good; the water in this mine is neither cold nor hot; he thinks both men and boys are generally very healthy here. Our ladders are about three fathoms in length, with a platform at the end of each; they are inclined about one foot in the fathom; the staves are 12 inches apart. The men here very seldom work double cores.

Lead Mine (No. ll)

No.84 (E. 16) *The Captain of the Dressers,* examined at the Cornubian Lead Mine, Apri1 27, 1841, stated:

That the boys on the surface had been very badly behaved when he came there a twelvemonth since; they were constantly pelting and splashing each other, and hooting passers-by. He told them he would discharge the first offender, and it was soon put a stop to. They have become very much more quiet of late, and for the last three months they have held a meeting at dinner-time among themselves, at which they sing hymns and have prayers; five of them also meet for mutual instruction in the chapel in the evenings on which it is not used for worship. Two young men are talking of teaching writing gratuitously. They mostly go three miles to their homes; they would be very glad to avail themselves of an evening school, were there one within reach.

The surface-boys and girls are allowed 10 minutes for "crowst" at 10 o'clock. The girls are very well behaved; he thinks the boys have been more diligent since they have held their meeting. The dressing is done on the owners' account; the "buckers" are paid by the barrow, 3½d for each; they can break about three in the day. The lead requires to be bruised to a much finer size than the copper-ore. The "cobbers" are paid by the day. The underground work is done by eight hours course, except in wet places; he first went underground himself at 11 years of age, in Wheal Gowland [sic], at the 45-fathom level, and stayed there two years; he did not suffer; the first notice he had of his being affected by "poor air" was feeling one day quite tipsy after drinking a pint of beer; he could before have drunk a pint of spirits without being intoxicated. He has chiefly worked in lead-mines. and generally on the surface. Is 44 years old; is not aware of any mischief arising from the lead; there are no sores of the feet.

Copper Mine (No. IV)

No.85 (E. 18) Mr. *John Richards.* Examined at the Consolidated Mines, Gwennap, May 15, 1841:

Is one of the principal agents in this mine. Has been here 11 years. The depth is now above 300 fathoms from the surface. The levels are about seven feet high, and the ventilation is good, the depth considered; it is effected by shafts and winzes, without the use of air-machines. The temperature varies from 70° to 90° in the lower levels. The mine is in Killas. The produce copper, and a little tin. About 200 tons of the former are raised monthly.

The ladders are generally about four fathoms in length, and are inclined on the average about two feet three inches in the fathom, following the inclination of the lode. The staves are generally 12 inches apart, not more than 50 fathoms in the whole mine being furnished with 10-inch staves. The quantity of powder-smoke is not so great in this mine as in many. A great part of the lode can be worked by the men with very little blasting. Our consumption of gunpowder is about two tons a month. The lode is worked by tributers. They generally go down about eight in the morning and come up about six in the evening. It would take about 40 minutes to go down, and double that time to come up from the lower levels, so that they are about eight hours at their pitch. The tutworkmen work eight-hour cores, night and day. They are eight hours absent from surface; from six to seven at work. The climbing is generally steady here, not very fast. It is very seldom that the tut-workmen stay overtime, the tributers never. We have some men above 40 under the 200 fathom level, but in general as they get older they seek shallower levels. Men about 30 are the best miners, having strength and judgment as well. Very few of them are given to drink, so as to lose any time. They do not absent themselves from their pitches after the pay-day. Does not think the boys under-ground are taken into concern as men till they are 18 or 19 on the average. There have been very few accidents from blasting; in the mine; several lately from falling away. Two have been killed within the last fortnight. It does not often happen that they fall off the ladders, but sometimes the stages on which they are working-may give way; sometimes, being in the dark, they may fall into a shaft or winze. Another man was injured last week by a piece of iron falling on his head, while he was filling the kibble but he is likely to recover. The regular hours for surface-work are from seven A. M. to half-past five

P.M.. Some stay longer, but not the greater part. Sometimes, as is the case at present, when there is a large quantity of ore raised in one part of the mine, it is necessary to employ the dressers beyond the regular hours. There would not be accommodation for a greater number of hands. Three-fourths of the men and boys are permanently employed at the mine and stay here constantly. The steady men generally remain in one mine. The girls are less constantly engaged. A great many live as far as Redruth. "Three miles is a fair distance". The surface-people are paid once a-month; generally five together, in such sums, and with sufficient small change, to enable them to divide what is due to each without going to a shop or the public-house.

No.80 (H. 30) *Martha Buckingham,* 14 years and one month old. Examined at the Consolidated Mines, May 15, 1841:

Has been at work about four years; always at this mine. Has been employed "picking" all the time, except "carrying" now and then, and "griddling" or "spalling" once in a way to help "the pair" when they are busy. "Carrying" is the hardest work; this gives her sometimes a pain in the back. Now and then she does this for the whole day, She gets wet sometime, in the winter, the wind and rain driving under the shed. Catches cold sometimes; most of the girls do. Has been kept at home a fortnight together by cold, caught chiefly by getting her feet wet in coming and going. The girls cannot get a pair of shoes to change when they come to the mine; it is hard enough to get one pair to wear. She also "overheated her blood" by carrying and working hard, and has had a breaking out since. She usually comes to work at seven in the morning, and goes home at half-past five, but at sampling, which occurs about once a month, they come at six and stay till eight. They do this for a week sometimes, and sometimes for a fortnight. This is the case now. She lives at Bissoe Bridge (three miles distant). Gets her supper after she goes home, and goes to bed as soon as she can; at half-past nine or ten. She gets up at four. Are seven in family. Has no father; he died in Scotland about eight years ago. Was a miner. All are older than herself, except one. All work to the mines, except the youngest. One brother is ill; he was working at Poldice in a hot place, and then had to fill the kibble in cold water. She gets her breakfast before leaving in the morning. No time is allowed for "crowst." (lunch), but about nine or ten they take a bit of pasty when the agent is not looking, holding it with one hand and working with the other. When they work overtime time they are allowed to stay at home a day when the sampling is over; they are not paid anything more than the regular wages. There is not regular work for all in the summer; but in the winter all come or very nearly all. They are allowed half an hour for dinner. They warm the pasties and hobbans at the "dry" when the weather is cold. They take their dinners under a shed; the girls all together. An anker (small barrel) of cold water is brought for them to drink. No water is to be had except for a long way off. She feels very tired to walk home. No tasks are given; they always work till half-past five. When they work late on the other days they leave work at half-past five on Saturdays. She goes to Sunday-school with the Methodists. Learns to read and spell, with the Catechism.

She reads pretty well. Has cough, and a papulous eruption; but has the appearance of being generally healthy.

No.87 (H. 31) *Mary Verran,* 14 years and 10 months old. Examined at the Consolidated Mines, May 15, 1841:

Has been working four years; always here. Her employment has been "picking". Carrying and other work at sampling time just every day. She feels pain in the back and side, chiefly about the middle part of the day; feels it after she lies down at night. She lives about a mile off. Gets up about half-past four or five o'clock. Her father was a miner, but now goes with the train-waggons on the railway; the wages are better than at the mine. She hears most of the girls complain of pain in the back from "carrying". They do not complain much except of the carrying. She finds the half-hour rather short for dinner. They are allowed half a day at Whitsuntide, two hours at Midsummer, and two hours on Christmas-eve, and all Christmas-day and Good Friday. The girls bring hobbans; plum and potato, more than pasties. Not many bring bread and butter. A hobban is not so good as a pasty. Some are made with barley. She gets for supper fish and potatoes; sometimes stew, roast potatoes, or broth. Sometimes, but very seldom, the girls are obliged to give up their work from being sick or faint; two or three months ago three or four were obliged to be led home; they were employed at out-door work, griddling or spalling. She went to day-school before she came to work, and goes to Sunday-school twice in the day.

She reads pretty well. Thought John the Baptist had written the Gospel. Had never heard of the Saddueees. She is rather robust in her appearance.

No. 88 (H. 32) *Elizabeth Curnow,* 24 years old. Examined at the Consolidated Mines, May 15, 1841:

Has been about eight years coming to the mines. Has only worked these two last days for two months. Is taken with a gradual loss of strength and appetite once or twice a year, and finds the harder she works the less she can eat. Sometimes she comes to the mine, and sometimes she goes into service, when her health is more established. Does not find much difference as to her health between these two occupations; the work at the mine is harder for the time, but when one leaves work, there is nothing more to do. She comes at seven in the

morning and stays till eight in the evening at sampling. This is once a month, and lasts for a week or a fortnight, more often a fortnight. She is generally employed "cobbing". They are paid by the barrow, 8d for six barrows. The half-hour is not long enough for dinner, especially for those who have bad teeth. They can always warm their dinners if they like. She lives about two miles from the mine. It was always usual to stay till eight here. She gets very cold about the legs with the broken stones in the winter; and the house runs with water; most complain of it. The older girls generally have pasties.

Complexion rather sallow.

No.89 (H. 33) *Christiana Pascoe,* 17 years and 4 months old. Examined at the Consolidated Mines, May 15, 1841:

Has come to work about five years, or rather more. Has always been at these mines. She was for two years employed "picking", then she went to the floors, "spalling" and "carrying"; and she has now been "cobbing" for seven months. This work is not so trying to the body as working out of doors. She was let in because she was not able to continue work out. She had pains in her back. and was falling into a decline by it, her breath getting very short, till she took medicine for it. Cobbing is very cold for the legs. The feet get wet with water coming in; and the stones are wet when there is rain. Can "cobbie" six harrows a day, for which 8d. is paid. That is all they are allowed to get when they do not stay till eight. She could not do more well; the work is very hard. Can cobbie a barrow and sometimes two in the overtime. She has still shortness of breath at all times; and pain in the back after working a good many hours. She lives a mile off. Gets up at six; does not get to bed till from 10 to 11; her mother being a widow, and there being household and needle-work to be done after she gets home. Her father was hurt in the mine (Wood Mine), and brought up blood and fell into a consumption, and died eight months ago.

Complexion indicating venous congestion.

No. 90 (H. 34) *William Trethewy,* 13 years old. Examined at the Consolidated Mines, May 15th, 1841:

Has been working three or four years at the mine. Has been "rolling" and "jigging". He worked under-ground for a month or two, three months since, at the 110-fathom level; was employed turning the borer. Was very well then. Caught cold a few days ago, when he stayed up all night "jigging." This was the only time he had worked at night. It was fine weather. but all the boys caught cold; ten of them. Has had very good health generally. He stays from six to eight about a week or a fortnight in the month. Feels his arms and legs pain him sometimes; but is as well as ever after he gets into bed. They are allowed a day or so over their regular pay for this extra work. They take a bit of something about 10 o'clock in the morning; there is no regular time allowed. He got on very well climbing when underground, and would be glad to go down again if he could. Felt nothing from the powder-smoke or poor air. Did not spit black stuff: "Rolling" is the hardest work at surface, and "jigging" in a sieve. Only two of the boys, myself and another, can do it. There are only two boys older than myself on the floors. He never went to day-school except when a little boy. Goes to the church Sunday-school at St. Day where he began to learn to write a week ago. He lives at St. Day (one mile distant). Generally brings potato hobban for dinner. His wages are 12s a month.

He reads fairly. He is now hoarse and suffers from catarrh, but is a fine boy.

No.91 (H.35) *Elisha Morcom,* 13 years and 6 months old. Examined at the Consolidated Mines, May 14th, 1841:

Has been kept at home before to-day for two days, in consequence of having received a blow in the bowels from a stone which a boy threw at him wantonly. He has been ill from time to time, with pain in the bowels, sides, &c. Has been kept at home by sickness a month or two in four years. His general work is "jigging". Has been "rolling" this afternoon. He has been working at grass four years and a half. Always at this mine, with the exception of two or three months. Has been "jigging" a month. His wages are 10s 6d a month. He lives two miles off. Generally gets up at four o'clock or soon after. Brings potato hobban for dinner mostly. Generally, not always, leaves work at half-past five on Saturdays. Went to day-school, and learnt to read, and to write a little.

Reads tolerably.

No.92 (H. 36) *Richard Jeffery,* 9 years and 1 month old. Examined at the Consolidated Mines, May 14th, 1841:

He belongs at the "boxes" (picking tables). Gets 6s a month. Has been eight months here. Has had very good health. His hands get sore when he is long at the "shambles" (the heap to which the stones rejected by the pickers are taken). He stays till eight o'clock now. Is tired with his day's work. Lives two miles and a half off. His father died out at Mexico with the cholera. His mother was left with four, three girls and himself. He is the youngest. Does not go to school. Has never gone yet. His mother cannot afford to give him clothes to go in. Two of his sisters work at this mine; the other is a dressmaker. He cannot read.

II. CORNWALL. WESTERN DISTRICT.

Tin Mine (No. III)

No.93 (E. 16) Mr. Edward Carthew. Examined at Balleswidden Mine, April 16th, 1841:
Is agent for the surface-work. Has been here for about two years. Previously for five years he had lived on a small farm in Illogan, Before that he was for four years and seven months in Columbia, under the Columbian Mining Association. Prior to this be had been surface agent at a mine in Camborne parish, between which and his going to Columbia he had stamps of his own. He went underground first, when about 13, at Wheal Fanny (Carnbrea Mines), and continued to do so for about seven years. Working on tribute. and not being much exposed to wet, poor air, or to climbing from great depths, he did not suffer. Does not remember that the boys complained of the effects of working under-ground. Does not know, and had not heard it remarked, that those who went underground *at* a very early age died earlier than those who did not. His experience in deep mines is not considerable. Thinks he has remarked that the men in general have a healthier appearance in this neighbourhood than in Illogan and that district. Considers that the families of miners are, as a class, in better condition than those of labourers in husbandry. A great portion of the miners here live on little plots of their own.

Has any arrangement different from the system usually followed in tin-mines been introduced here with respect to the employment of the boys and girls? Some new stamps were set up in October last, and the number of surface boys and girls has been increasing since. When he went to Columbia he found the method of washing the gold-ore caused the loss of a considerable quantity, which was carried away with the refuse. He was desired to make some improvement in this, and he set up some "tyes" in the place of the "buddles" adjoining the stamps. These were found to answer, and he has introduced them here. The consequence is that, the work being lighter, boys at 15s a month can do the work which would have required boys at 25s for the buddles.
What are your hours of work for the boys and girls at surface? From seven A.M. to six PM. in summer, and from twelve to one for dinner. In winter they work whilst there is daylight, and are allowed about 40 minutes for dinner. On Saturday they leave work at four P.M. in summer, and at three in winter.
Is work ever done on the surface after the regular hours of closing? Scarce ever except at the calcining dressing, which does not employ half a dozen. No work is done on Sunday; the hours of work are seldom shortened by tasks, or in any other way; there are only 15 under ground under the age of 18; working overtime is entirely at their own choice.
Have you observed what is given to the boys and girls for their dinners? More than half of them have fish and potatoes, or stew with a little meat in it; the rest bring pasties or "fuggans" A great many have their dinners brought to them warm by their friends from their homes.
What is the employment of the youngest boys underground? They are employed tending the pair (adult labourers), breaking stuff for "tamping", and other light jobs.
Is any superintendence exercised to guard against the employment of very young or weakly boys in unfavourable situations? No, the boys are chiefly with their fathers or brothers, and are taken care of by them.
Are there any holidays allowed? Only Christmas-day and Good Friday.
Are the children employed by the tributers, or by the owners? They are employed by the dresser who pays them separately. The agreements are made by the children themselves. There is no complaint whatever with respect to the payment of wages either on the part of children or parents.
Is any check exercised on the tributer as to his spaling (fining) the boys under him? The only spaling practised here is in case of their not coming in time to their work, which is a rare occurrence.
Have you discovered, or had reason to suspect dishonesty in many instances? We have had no reason to complain in this respect.

There would probably be no difficulty in arranging the hours for the children's leaving work so that they might attend evening-school.
There is a fund in this mine raised by the payment of 8d a month by the men, from which 5s a week is allowed in case of sickness or injury. It has been always solvent, and has had a balance in hand. In cases of consumption it is left to the miners to decide how long the payment shall be continued; he has never known persons rely on the fund for more than a month or six weeks. Sixpence a. month is paid to the surgeon, for which he provides attendance to the whole family in sickness as well as injury.

No.94 (F. 13) One of the tributers, adult. Examined at Balleswidden Mine, April 16th, 1841:
Has worked here for two years; his wife and child live at Newlyn (six or seven miles distant), and he comes out on Monday, and returns on Friday or Saturday, when his week is finished, lodging in the neighbourhood of the mine: his wife carries on a little trade in fish; he is a native of St. Just, and first went. underground, at Balleswidden, when seven years and a half old; his father was a needy man, which occasioned his going down so young; afterwards he worked in Wheal Busy, and lived at Chacewater (central district);

was sump-man for 10 years; he did not suffer as a boy, nor afterwards, until he was sent to clean the adit (from stalactitic incrustations) after a fall of snow, when there was so much water, that they were immersed to the breast, often to the chin; the stream was so powerful, that they were not able to make head against it, so as to return in the same direction in which they entered, but were forced to go along the adit with the stream into another mine; so that they were altogether six hours in this icy cold water; and when they got to the surface they had to walk two miles back to their own mine before they could get their dry clothes. His comrade, who was a stronger man than himself, took to his bed and died; and he himself has ever since been subject to an asthmatic affection, which he cannot throw off. There is nothing objectionable in Balleswidden, except that there is a great deal of powder-smoke. "Though this is my own country, (St.Just) I think there is a great difference in the principle of the men from what there is farther east; I received more kindness there than I ever did here; they lived better there; here there is nothing but fish and potatoes". "I earned only 11s 6d last month, and had to pay 15s for my bread and lodging; and the month before I got nothing at all; the 'pitch' is now better. If I could raise a sufficient sum to buy a horse, I would travel and sell fish, and give up mining altogether."

This man's voice was hoarse, and he laboured under a degree of dyspnoea.

Copper and Tin Mine (No. V)

No.95 (E. 17) Mr. John Nancarvis, 36 years old. Examined at the Levant Mine, April 16th, 1841:

Is employed as captain of the dressers; he overlooks the whole of the dressing the ores of copper; has been five years in that situation; before that worked underground; has been nearly 20 years under the same adventurers, and chiefly in this mine; he has 45 boys and girls under him. The hours for surface-work here are from seven in the morning till 12, then dinner till one, and work till five; in the winter as long as they can see; underground they work six-hour "cores." The mine is hot and deep, and it is considered that six hours will work a man down". The friends commonly bring their dinners to them, fish and potatoes and stew chiefly. They have six holidays in the year: this is an old-established custom in the mine; they are not paid for those days; they leave work rather earlier on Saturdays than on other days; no work is done on Sundays except tending the engine; no boys or girls are employed on that day. Those who go to work underground very early; and it is more common here at 10 years of age than later; lose their colour; they often spit black stuff, and he thinks they grow up more weakly, and probably fail sooner. than those who have begun later; parents would not send them so early except from their necessities. The ladders here are in some cases perpendicular, in others inclined but 10 fathoms in length; some "ends" may be 50 or 60 fathoms, or even more, from any draught. The boys underground are employed in wheeling stuff and tending the men; they are employed by the tributers and tutworkmen, and no interference would be exercised, except in extreme cases; they have been sometimes so young as to be carried on the ladders. Accidents have happened to children from their carelessness.

Do you find that complaints are made of irregular payment of wages by the men who employ children, or by the parents that the children do not bring home their wages? Now and then complaints are made, but seldom of irregularity of pay. The boys, and still more the girls, will sometimes conceal from their parents the amount they have received at the mine, and will request me not to tell them what it was.

Up to what age is it usual with the young people to take in their whole earnings to their parents? When the boys and girls come to be about 19 or 20, and the boys earlier if they take a man's place, they often arrange to pay a certain sum, commonly about 14s a month, to their parents for board and lodging.

In what sums are the wages paid? Five or six are paid together, perhaps with silver, and a £5 note among them; this they change at the shops where they deal.

Is it common for the men to fine the boys employed by them? There is no spaling (fining) by the tributers, except in case of a boy's absence front his place, when another must be procured in his stead, at his expense.

Do you consider that the boys and girls employed here are better or worse in condition than those who are otherwise employed? On the surface they are fully as well off, and in as good condition; not underground.

What has been your general experience of the moral character of the children and young persons employed in your mine? On the whole it is good. Some, generally according to the character of the parents, are bad and ungoverned.

Have you found dishonesty at all frequent? It has very seldom occurred; a pretty-good watch is kept. Cases of "kitting" (exchanging ores at different tributes) happen at times. Two men were committed to gaol for this only a few days ago.

Is coarseness of language common among the girls? I think they are pretty well spoken here generally.

Do they get married early? Some as early as 17 or 18.

Do they make good housewives? They get on pretty well; hardly so well as those who I have been reared at home entirely.

Would a parent, who was much concerned as to the religious and moral principles of his daughters, be willing that they should work at these mines? Yes, he would not object.

Is marriage frequently deferred till it is rendered necessary by the condition of the young woman to save her reputation, and in similar cases is desertion common? More, I think of those who have been married from this mine, have proved to have been in the family-way when married than not. There has, I believe, been only one case of desertion by the man, during the last five years. The young men often marry at 18, 19, or 20.

No. 96 (B. 4) Rev. *Thomas Jewell.* Examined at St. Just, April 16th, 1841:

Has been here for about a year as Wesleyan Methodist minister; was previously stationed at another mining district, at St. Agnes. We have, during the last year, had a system in operation of sending pupils gratuitously, by means of private subscriptions, to the schools already existing in the several villages in the parish; last year we sent 36. I have a Bible class of about 30 girls and 20 boys, whom I examine for an hour and a half or two hours on one evening in the week, hearing them read the scriptures, and then questioning them colloquially on what they have read, and on general matters connected with their ordinary life. I was for three years at St. Agnes, and consider the St. Just district on the whole in advance of the others: there is more respect for the Sabbath, more estimation of the Sunday-schools, and also of the value of secular instruction. In making visits last winter among some of the poorer families, with a view to distributing a benefaction of coal, I found several who were evidently necessitous, but who declined accepting a donation. There was a national school here, which was discontinued five or six years ago. The master was not suitable; and the being obliged to attend church seems to have operated against its success. What are the results of your observation as to the domestic habits and skill of the wives of the miners, positively and comparatively? I have visited at least a thousand houses of miners at St. Agnes and here, and I find the females taken from the mines very deficient in skill in domestic work; unable to make and mend; they are not much inclined to stay at home. In this neighbourhood the girls are not so much employed at mines as at St. Agnes.

Have you noticed any particulars in their domestic arrangements calculated to operate unfavourably on the characters of the young women? The habits of the miners are not calculated to promote domestic regularity. I may mention particularly the uncertainty of their hours of meals and sleep, and their making little or no distinction between day and night. The houses are too small to admit of a proper separation of sleeping-rooms; and it often happens in a thriving mining district, such as this, that men come from a distance and lodge with families; in which case they frequently sleep in the same room with the females, and the father of the family may be called away to his work during the night.

What opinion have you formed as to the general physical condition of the labouring classes in this neighbourhood, compared with that in other parts in which you have had opportunities of observation? I have seen a great deal of Devonshire, and the poor of the Isle of Man, and I consider the condition of the miner very superior. As agricultural labourers I have never known men so well off as those in the deanery of Buryan (three parishes adjoining St. Just), where they have “part of a cow”, sometimes one to themselves, a pig, and so forth. All classes make a great use of fish, of which the supply is on the whole abundant; they eat it in various ways with potatoes which are particularly good in this neighbourhood. The larger fish, as conger, are preferred to the pilchard. Several miners have shares in fishing-boats, perhaps one in ten of the fathers of families; the boats are small, and are shared among six or eight; they are not of any important pecuniary advantage to the miner. Barley bread is much used here; more than in the eastern mining districts.

Could you distinguish the children who work underground from others, when dressed in their Sunday clothes? I think I should know them very readily in the Sunday-school, by their greater sallowness.

No. 97 (A. 3) *Joseph Came, Esq.* Examined at Penzance, April 15th, 1841:

Have you as a magistrate had cases brought, before you arising out of the contract system usual in our mines? At petty sessions we have a few summonses in consequence of disagreement as to the amount due; six to one more frequently against the agents than against the men. These have been less frequent since we recommended the signing the agreements by the takers of pitches (contracts).

Do you consider the usual system of putting up the work at auction advantageous to the miner, or otherwise? It does not seem to me to foster habits of prudence and economy, the wages being very uncertain in amount; and sometimes the smallness of the gains leads to a good deal of difficulty in providing for a family. This happens chiefly to heedless men. I have hardly ever known a good m$_i$ner, a prudent man of good common sense, a loser by a pitch. A great deal of calculation is needed before the miner can form a just estimate of the returns likely to be made to him by a particular piece of contract-work. He must take into consideration the hardness of the ground, and how much of it he will be able to remove in a given time; what it will cost to break and dress it when brought to the surface; the expense of powder, candles, tools, and other materials; the probable amount of ore contained, and its richness; and lastly, the standard or price of the ore in the market when it is brought to sale. The clever and experienced miner will reckon up all these items with great accuracy, though commonly without any technical knowledge of arithmetic. But, on the whole, I think it would be better to set the pitches at a fixed standard, and to pay the tributers once a month.

You have been acquainted with the mining population in this county for a great many years: allow me to ask your opinion as to its positive and relative progress in social and individual improvement? It seems to me that the advance in the civilization of the miners has gone on at about an equal rate with that of society generally. The difference in the conduct of the miners, as respects morals and decency of behaviour, is not perhaps very distinctly marked; but a very great improvement has taken place in the character of the agents, and this eventually influences very much the conduct of the men. As to mental cultivation, observation and common sense continue still, as they have been, more remarkably their characteristics than school education.
Do you consider the wages earned by the children and young persons employed in our mines more than sufficient to provide what is commonly furnished to them by their parents? Certainly, in a large proportion of cases; 6d a day would, I conceive, provide sustenance and perhaps clothing.
Do you look upon the style of dress of the miners' children as extravagant, judging from their appearance at the Sunday-schools? The clothing of the children at the Sunday-schools is decent, not fine.
To revert to charges brought before you as a magistrate, have the children and young persons been often convicted of dishonesty? I have known very few or no charges of dishonesty against the children and young persons in our mines.

III. CORNWALL.EASTERN DISTRICT

Tin Mine (No. IV)

No.98. (E. 18.) ***Mr. Francis Barrett*. Examined at the Charlestown United Mines, April 6th, 1841:**
Is one of the principal agents managing these mines. Almost all the underground work here is done by tutwork. The men can earn from £2 18s to £3 a month, after deducting every charge. We have never had an accident arising from our footways. About 10 or 15 of our boys work one night in a month. Christmas-day and Good Friday, and St. Austle Feast, are the holidays. Those engaged on monthly wages are allowed the latter without deduction. 50 or 60 of the surface boys and girls are employed by a tributer. They are paid by him; but care is taken that this is regularly done. They often are all paid separately. When they get 30s amonth, they are allowed 10s for subsistence (in advance). A few may get a shilling or two in the month by working after time. The tributer has the power of spaling (fining), but it is rarely exercised; if severely, the parent complains, and he gives the case a hearing. "Cases of gross misconduct out of hours and not occurring in the mine would in all probability be brought under my notice; and in such cases hitherto by application to the parents, by threatening fine in case of repetition of offence, and similar means, I have usually found that sufficient control could be established. Dismissal is the final punishment, but it has not been required in more than three or four instances."

Do you consider the children and young persons employed in your mines better or worse in physical condition than those otherwise employed in your neighbourhood? Rather better than agricultural children. I see them better dressed on the Sunday. The surface boys and girls have a very healthy appearance.
Is there a decided difference to the disadvantage of those working underground? I should say, judging from my own experience, the difference is very distinct. They do not look so healthy.
Do you consider that anything in their domestic circumstances contributes to render them less healthy? Not in this district.
You have noticed the food brought to the mine by time boys and girls; what does it usually consist of? Generally potato pasty, with a little meat for the most part, as often mutton as pork, not much beef. It is, I should say, amply sufficient in quantity.
Is any clothing provided by the mine? Only to sump and timber men.
Do the boys and girls make any change between summer and winter? The boys have generally an additional blanket coat for the winter; in the dress of the girls there is not much apparent difference, but they are no doubt more warmly clad.
What has been your general experience of the honesty and veracity of the young people employed in your mines? They are generally honest, and perhaps 60 per cent of them may be relied on with confidence for veracity.
Is pregnancy at the time of marriage known lobe very frequent, and have many instances of desertion occurred? Being pregnant before marriage is very common. Subsequent marriage, so as to legitimatize the child, is the rule. Some few cases of desertion occur, not one in three of those in the agricultural districts. The public opinion of the miners here would be strong against it, so as probably to drive a man away from the neighbourhood.
Are marriages contracted very early in life? By women commonly from 18 to 21, and under 25 by the men. I think the early marriage of the men is rather less frequent.
Do you consider this to arise from increased profligacy or increased prudence? Rather I fear from increased profligacy.
Do the girls prove good housewives? They are not economical or good managers chiefly from ignorance. But I think there is an improvement during the last 15 or 20 years.
Would a religious parent be willing that his daughters should work at a mine? Yes,

there is less corruption now than formerly; coarseness and swearing are getting unpopular among the labourers themselves.

Do you think a sum varying from 1d to 3d a week according to the age could be afforded out of the earnings of the boys and girls for their education? I think 1d a week might be afforded.

Do you think that the duration or severity of the work would prevent their bestowing time or attention on the subjects in which they might be instructed? The amount of labour does not incapacitate them otherwise than occupying their time. I think evening-schools would be very beneficial.

Do you see any material difficulty in shortening the duration of the labour of the younger children? I think no benefit would arise from shortening their labour, as their work is very light and easy.

Would there be any material difficulty in forbidding the employment of boys under 14 years of age underground? There is no advantage in these mines in employing boys below that age.

No.99 (F. 14) *Richard Thomas,* 55 years old. Examined at the Charlestown Mines, April 5th 1841:

Went to work at surface at 10 years of age, and went underground almost immediately. Was employed blowing the air-machine, which he did for a great part of a twelvemonth. This was in Wheal Damsel in Gwennap. It was not usual at that time for boys to go underground at so early an age, but he had an uncle who was a captain in the mine, and who put him into the place. He considered it a favour to go underground, as he got 5s. a-week there, while he only had 1s 3d at grass. He has continued to work underground as his regular calling from that time to the present. He has not been aware that he has suffered from bad air, except feeling a pain and tightness across the forehead, though he has worked in as bad air as possible; so bad that the man who was with him has fallen off the place where he was sitting at his work, and would have died had he not removed him from the spot. The worst air he has known was in the old Wheal Jewell, a "granite" air, which is ten times worse than the Killas. He worked in a mine in this neighbourhood which was carried under the sea, where there was a bed of mud and sand (alluvium), and the air would take fire at times and scorch their clothes; he set fire to it twice himself. He believes that the boys in his early days did not generally work underground so young as they do now. There has no change taken place, so far as he is aware, in the hours of work since he was a boy. There were three "cores" a day, and the work at night was the same as at present. They went to work at grass (surface) at that time at six in the morning, and left work at six in the evening; but two hours were allowed for dinner; this was in the summer. At that time it was usual to relieve "up'' (at surface) instead of "down" (underground), as is now done, in the eight-hour cores, so that he thinks the work-hours were not really so long as at present. Did not, and does not, work overtime himself often. Has known hundreds, he believes, drop from "poor air," and die of decline. He believes that in many cases life might have been preserved had the occupation been changed in the beginning; but poverty compelled men to continue. He knew a man in Wheal Jewell who was laid up for five years from the effects of "poor air", and was afterwards restored by being allowed a quantity of beef and beer daily by the adventurers; he being sent to the inn to eat it, as it was known that if he took it to his own house he would share it with his family. He thinks the half-hour for dinner is rather short, as the pasty is hard; and he would like to have his pipe afterwards. He has eight children himself. Three of them are married. One boy about 19 is now working with him. He has been underground for two years; is in good health.

No. 100 (F. 15) *Henry George,* 50 years old. Examined at the Charlestown Mines, April 5th, 1841:

Is employed as timberman in this mine. Has been 30 years with the present adventurers. Was born at Blackwater (Kenwyn), and went to work at grass at about 10 years old, and underground before he was 12, at Trescurbie in that neighbourhood. He has continued to work underground ever since; but has been timberman for 20 years. He was often taken down on his father's back, when he was not eight years old, to a depth of 70 fathoms, and would stay down till his father went up again. He does not remember to have had a day's sickness before he was 20 years old. After this he had a fall in the mine, which was followed by typhus fever, which came on afterwards for seven years in succession about Midsummer-day. Was exposed when a boy to "poor air", and would spit black stuff*;* but did not suffer from shortness of breathing or otherwise from it. In the general way they worked six-hour courses at that time, but the levels were much more contracted than they now are. There have been very few accidents in this mine, or in East Crinnis, where he worked before as timberman, and where the ladders were short, and inclined about one foot per fathom. He has made an improvement in the construction by providing platforms and penthouses about every four fathoms, so that neither men nor tools can fall a greater distance than that; and the passage to the ladder below being under the penthouse, nothing can fall from one ladder upon those below it. This mine is the driest he ever saw in his life; the cold is complained of more than any heats. He has three sons and four daughters. The two eldest are grown men, one in Scotland, the other near Bodmin, mining. The other boy, who is near 14 years of age, is at surface-work at Lanescot (Fowey Consols). He paid 6d a week for each of his boys to attend evening-school for several winters. He has not sent any of his girls to the mine, but would not object to doing so. In this country there is a difficulty in finding other work. One of his girls is married, and another about to be so; the youngest is at school, the other a milliner. He has had nothing but his pay. He

has not himself observed a difference in the health of those who have begun to go under ground very early and others. He has seen a great number drop from consumption. Does not impute this more to imprudence of their own than to the bad effects of poor air, colds and so forth. The greater size of the levels is a very great improvement. He thinks the men in these mines have been much more healthy than those working in the deep mines. Those employed at the "Crushers", where the ore is ground small, spit stuff almost as black as ink. In working under the sea near Par, the air was very bad. They would see a blue flame issuing from the back of the level, which would singe their jackets.

No.101 (H. 26) *Harry Thomas*, 10 years and 11 months old. Examined at the Charlestown Mines, April 1st, 1841:
Has been here only 12 days. Is employed in serving the "buddle." Finds it rather hard as yet. Was at day-school, and goes to Sunday-school.

Healthy boy. He reads very badly. Cannot write.

No.102 (H. 27) *William Rowett,* 13 years old. Examined at the Charlestown Mines, April 1st, 1841:
Has been four years on the mine. Has been always employed tending the buddle. Another boy of his own age works with him. Comes to the mine at seven in the morning, and leaves work at half-past five in the evening.

How often do you work after half-past five? Once or twice a month we work as long as we can see, and then go to supper; we are allowed an hour to supper; then we work by candlelight till 12, we are then allowed till one, and we eat some pasty, do not go home. After this we work till two in the afternoon. I am paid for this a day and a half. I put this into my own pocket. Sometimes I feel sleepy, sometimes very well. His father is a timberman at this mine. Has nine children, eight boys and one girl; six of them are at this mine with his father. He was at day-school a year and a half before came to the mine, and then at Sunday-school till a year and a half ago (at Mount Charles Wesleyan Meeting), but has forgotten what he learnt. Cannot read. Did not give his thoughts to it. Has not clothes to go to Sunday-school. He works with his father after he leaves work at the mine. Does not feel tired. Has been quite well.

No.103 (H. 28) *Elizabeth Hockin,* 17½ years old. Examined at the Charlestown Mines, April 1st, 1841:
Her work is spalling. She has been here four years. Has been spalling three years; was recking before. She found the spalling much the harder work; still finds it hard; feels pain in her limbs, sometimes in her back; does not always get rid of it on lying down. She stays up till nine or ten, and gets up at half-past five. She works an hour or an hour and a half overtime about once a month. She gives her mother all her wages, and what she can of extra pay.

A strong and ruddy girl.

No.104 (H. 29) *Elizabeth Davey,* 17 years old. Examined at the Charlestown Mines, April 1st, 1841:
Has been here a year and a half. Is employed recking. She was in service before she came to the mine. Finds this employment agree with her better than service; but is liable to take cold.

Has a good colour, but looks rather delicate.

Copper Mine (No. V)

No.105 (H.37) *Jacob Waters,* 17 years and 10 months old. Examined at the Fowey Consols Mines, April 2nd, 1841:
Is employed at the 67-fathom level, beating the borer and turning it. Has been 16 months underground steadily. Before that worked underground for a very short time, when he was between 15 and 16. The air is poor where he is now. He has been there about four months, driving a level. He feels a pain in the head after working some time, which lasts for some hours after he is come to the surface. Almost every morning he has a cough, and brings up some stuff as black as ink. Sometimes he feels a pain in the breast. He is employed at tutwork. They work regularly eight-hour courses; always from six A.M. to two P.M. They "shoot" (blast) three or four times a day, after which they cannot go into the end for half an hour, as it is full of smoke. He then eats his pasty in the level, where there is better air. He went to work at "grass" at 12 years old. Worked two years at "jigging", and before that at the stamps. He can do his work very well. He does nothing after he comes up from underground. He cannot generally get water underground. Sometimes it is brought to the same level. He sweats a great deal and is very thirsty. When he worked at night, he only worked double stem once. He worked double stem yesterday,—from 6 A.M. to 11 P.M., coining up in the mean time for an hour. He changes in a cold place. There is no warm water. In winter-time the shoes are sometimes frozen up in the chest. Has known several accidents happen to boys underground; some from falling away. His father was a miner, and had his leg broke [sic] by a piece of timber falling on him in the shaft. He went to day-school till he was 12, and afterwards to Sunday-school for a year and a half. He has since gone to an evening-school, where he learnt ciphering as far as compound division. The charge was 3d a week if candle was brought by the boy, and 3½d otherwise.

Reads well, and can write.

No.106 (H. 38) *William Blewett,* 16 years and 4 months old. Examined at the Fowey Consols Mines, April 2nd, 1841:

Works at the 55-fathom level. He went underground first about, nine years of age. He then worked a month or two at a time, blowing air. The deepest place he was then in was the 150-fathom level. Afterwards, at 11, he worked for a year at a time. At less than 12 years of age he was taken into concern with his father; was employed beating the borer, &c. He took his night "core" regularly then. He worked in "poor air" for nine months before the last two months. He felt noises in the head, and his legs would feel so weak that he was forced to stop at every ladder. Was very much affected with cough when working in the "poor air", and would bring up black stuff. When a little boy, he felt but little inconvenience when blowing air; but sometimes found the air so bad that he would be sick at the same time. At present he never works double stem; nor after 12 at night; except the other night when waiting on the trammer. He went to school for a twelvemonth before he came to work at surface, which he did at seven years of age. Since that has gone, till lately, to Tywardreath Sunday-school. They are very seldom asked questions on what they read. He can write very little. Never did any ciphering.

Reads pretty well.

No.107 (H. 39) *James Collins,* 14 years and 5 months old. Examined at the Fowey Consols Mines, April 2nd, 1841:

Has been underground about seven months. Was before about three years "to grass". He works now at the 80-fathom level, at the blowing-machine. Finds it rather hard work. When he goes into the end, when they want him, his head aches from the poor air, after he comes out." Does not get sick, but cannot eat his meat there. Very seldom eats the pasty he takes underground, but eats his meal heartily at home after he comes up. Can hardly climb sometimes from weakness in the legs. They carry water down themselves. Nobody is employed in this mine to carry water underground. He did not suffer "at grass" except sometimes from cold or getting wet, when "buddling". He is better now than when he went underground. Can eat his meat better. He is not in much smoke, and does not cough up the black sputa. He went to day-school "to a lot of places" before he came to the mine at all. Learnt nothing but reading has nearly forgotten what he learnt. Has not been to Sunday-school these nine months, for want of clothes. His father was a miner. "He went underground and took pain in his bowels, and died." This was nine years ago. His mother was left with four children. They are all employed at the mine. They can read. He worked last week three double stems, to keep the place for a comrade who met with an accident. "His candle went out, and he walked right into a winze." Once this week he has worked double stem for himself. He takes the night core with the men. He likes working underground better than "at grass", because the time is shorter. After he gets home he fetches water, works in the garden and so forth.

He has quite forgotten his reading, even in the Bible. Is hoarse, and says he has been so ever since he went underground.

No.108 (H. 40) *John Rundle,* 14 years old. Examined at the Fowey Consols Mines, April 2nd 1841:

Has been two years underground; works now at the 120-fathom level; he worked "to grass" before, for about three years and a half; his employment now is at the blowing-machine, and "haling [sic] tackle". The air is very bad; he cannot eat his pasty much; "he feels in his stomach all urging; was well when at grass, except colds; worked then at "buddling"; and "trunking"; was often wet; got his things dried at night when he went to bed; he finds it hard to climb the ladders; "likes underground better than to grass"; takes his night core in regular succession. His father is dead: "he was hurted", and went to work too soon afterwards; he left four children; one sister is married, and his two brothers work here. He went to day-school for three years and a half; learned to write pretty well, but has forgotten it since; goes to the Methodist Sunday-school; learns nothing but reading and spelling.

Reads badly.

No.109 (H. 41) *William Cullis*, 17 years old. Examined at the Fowey Consols Mines, April 2nd, 1841:

Is employed "jigging" at the floors; he worked before at the "crushers", (grinder) but found it disagree [sic] with his stomach; he was laid up three times; found his breathing short; lost his appetite, and brought up "old black trade"; hears other boys complain of this sometimes; he has been five years at the mine; was three years at the jigging-machine; found his back ache [sic] sometimes; when at the grinder he used to work sometimes (four times in six months) day and night, from seven in the evening to five next morning; he has been healthy at the other work. He went to day-school for two years; learnt to write a little, but has forgotten it. He went to Sunday-school, Tywardreath Church-school, till about a year ago; only learnt reading and spelling.

Reads pretty well.

No.110 (H. 42) *John Tillum,* 14 years and 5 months old. Examined at the Fowey Consols Mines, April 2nd, 1841:

Has worked underground most of his time for about four years past; works at the 170-fathom level, at the blowing-machine; it is very hot in the place; he can eat his pasty

there; is hoarse now, has been so about three weeks; he very seldom works double stem. His father is a miner; has five children, all younger than himself. He went 10 day-school; learnt a little ciphering, which he has forgotten; can write a little. Goes to Sunday-school (Methodist) still; they only learn reading and spelling.

He reads pretty well.

No.111 (H. 43) *John Spargoe,* 11 years and 4 months old. Examined at the Fowey Consols Mines, April 2nd, 1841:

Has been two years at the mine; is employed "jigging"; finds his back ache a little, but can play about afterwards; has a task once or twice a week, and can get away at two or three o'clock; works for himself afterwards when he can; never works at night. He went to day-school about a year before he came here; can read in the Testament; goes to Sunday-school.

Reads badly. A healthy boy.

No.112 (H. 44) *Mary Buller,* 15 years and 10 months old. Examined at the Fowey Consols Mines, April 2nd, 1841:

Has been working here about six years; generally "spalling" and "cobbing"; has generally had pretty good health; does not feel the work; leaves at five in the evening, never stays later, except once last month; perhaps once a week has a task, and can get away at three or half-past three. "Most of the girls whom I know of, and I know a pretty deal of them in the mine, are strong and hearty." One of them (whose name she mentioned) "is terrible weakly, and looks very earthy, though she is 18"; she went to day-school for three years, and learnt to read, and sew, and knit; has forgotten her reading; has not had clothes to go to Sunday-school; her mother is a widow, and could not afford to keep them at school.

No.113 (H 45) *Caroline Coom,* 11 years old. Examined at the Fowey Consols Mines, April 2nd, 1841:

Has been working here about two years; is employed "picking"; finds it easy and pleasant work; does not feel tired at the end of the day; none of the girls picking complain of anything; they get colds sometimes; she has no task; does not leave before five; has had a fever since she has been working at the mine; does not know how long ago. She goes to Sunday-school; reads the Testament there.

Reads a little.

No.114 (H 46) *Absalom George,* 13 years old. Examined at the Fowey Consols Mines, April 2nd, 1841:

He has worked underground about 13 months; is at the 45-fathom level; goes with his father instead of a man; gets wages as "part of a man"; he worked "to grass" for two years before. He went underground some time ago, and "blowed the machine" for about a fortnight; ''the air was rather dead, and I was laid up, and was turned out from there." He mostly spits up, when he comes up from work, "nasty black trade"; he brings up some borers and other weights sometimes, "which makes him pant a good deal." Does not work at night, nor double stem; he likes it better than to grass, because the days are shorter, but he works hard when he gets home, and would be obliged to do so if at grass. His father has a little farm; he has seven children; two of them are younger than himself, and do nothing; the rest are employed. He went to day-school from about six years old, and about 10 "went to ball" (the mine). He learnt to write a little; can write his name.

Goes to Sunday-school; can read pretty well.

No.115 (F. 14) *John Penhall,* 50 years old. Examined at Biscovay, St. Blazey, April 3rd, 1841:

Has been a miner from a boy; went underground at 15 or 16; he works now in the Fowey Consols; has nine children, whom he has had taught to read and write; he has paid 5s 6d a quarter for the day-school, and 3d a week for the evening-school; this is only open in the winter months. One of his boys he took underground at Fowey Consols about Christmas; he was 12 years old, a very fine and strong boy of his age. In about five weeks afterwards his boy was taken home on a shutter, with a broken leg and collar-bone; he fell off the ladder; could give no account of his fall, was not carrying anything; he was working himself in a distant part of the mine at the time. "When I was told what had happened, I travelled as fast as I could to the place; and I seemed to see, every few fathoms as I went, the body of my poor boy all crushed together: it was so clear that I stopped and rubbed my eyes, and asked myself whether I was in my right mind or no. When I got to the place, the boy was sitting upon a man's knee, looking up quite cheerful, only crying a little. He has found, when working in "poor air", that the pain in the forehead would often be very severe, and it was aggravated to an intense degree on stooping; so that he would dread to stoop to pick up a tool if he let one fall. The changes from heat to cold were at times very sudden; he might be working at a place, to get at which he would be obliged to wade for a considerable distance up to his breast in cold water; at other times he might work in a very hot place, from which they were obliged to retreat very frequently, as the water gained upon them, into the level, where they would all get huddled together as closely as possible, "creaming [sic] with cold;" then, when the water was in fork" (removed), they would in again, and drive at their work as hard as they could.