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 Ver.				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