

the total amount used by the world. The United States is now probably ahead of it, and we are increasing our product every year. The English coal veins are thin. The miners have to lie on their sides to work many of them. They have dug out the surface coal and they are now working at great depths. One English vein, fourteen and a half inches wide, is already down over twelve hundred feet. Such a vein would not be worked to any great depth in America. The Newcastle coal field, which is the richest in England, has veins from three to six feet thick, while the Wales coal veins are less than three feet in thickness. Some of our Pennsylvania anthracite veins run from thirty feet to sixty feet in thickness, while the Pittsburgh bituminous coal veins are from eight to sixteen feet thick. At the present rate of mining it is estimated that all the English coal will be exhausted in 212 years if it is worked down to 4,000 feet, and this will be 113 feet deeper than any of the English mines now worked. Notwithstanding the enormous amounts of coal which we have taken out of our anthracite region it is estimated that we could go on at the present rate for 616 years.

As England goes further down her coal mining will become more expensive, and her days as a manufacturing nation are, consequently, numbered. Already we surpass her a great deal in manufacturing, and there is no doubt that we, with our vast supplies of coal and iron, are to be the chief manufacturing nation of the future.

Our Appalachian coal fields alone could supply the world with fuel for centuries. They are the largest and richest known, and they are so situated that the coal can be shipped from them long distances by water. From Pittsburgh coal can be carried for eighteen thousand miles on navigable streams, and the grate fires of the south blaze with the rays from the black diamonds from Pennsylvania. The Ohio river is the great coal chute for the Mississippi valley. The coal is carried down it in great barges pushed by little steamers, and so fastened together that a single steamer will push acres of coal. Loads of twenty thousand tons are taken. A vast amount of coal is carried on the canals and the great lakes form one of the chief highways of the coal traffic.

The amount of coal carried on the railroads is almost beyond conception. The Philadelphia and Reading has more than fifty thousand coal cars, which are dragged by nine hundred coal locomotives. These cars are kept busy in carrying anthracite coal. The Pennsylvania railroad employs more than seventy thousand cars for the movement of its coal and coke trade, and the Central railroad of New Jersey carries about five million tons of anthracite coal every year. More coal is handled at New York than at any other place in the world except London, more than fifteen million tons being used or transshipped at that point annually.

One would think that there would be a lot of money in coal for the miners. There is not, and it is a question whether the present strike will materially better matters. As far as strikes have gone in the east, they have been against the working men. Some years ago Carroll D. Wright, the United States commissioner of labor, figured up the profit and loss of ten years of

striking in all branches of labor. He estimated that the employees during this time lost fifty-nine million dollars, an average of forty dollars to each striker involved, while the employers lost a little more than half the amount, or thirty million dollars.

The coal miners live as poorly as any other class of workmen in the country. For the most part they are in dirty villages, with narrow streets, their houses blackened by coal smoke. In many mining districts the houses belong to the company owning the mines, and the miners pay rent for them, so that when a strike occurs and they are out of money they are given orders to leave. Many of the houses have nothing more than two rooms and a kitchen, and in some places the only stores at which the miners can trade are the company's stores. With all this the American miners are far better off than the miners of other countries. The coal miners of Japan receive only a few cents a day. Both women and men work in the mines, and the foreign ships, which get coal at Japan are always loaded by women who pass the coal up the sides of the ship in baskets.

Women are still used in the coal mines of Belgium. They dress in trousers just like the men, and they do much the same work. They help load the coal, and in some of the mines they drag the cars from the tunnels to the bottom of the shaft. L. Simonin, a Frenchman, from whose book on underground life the illustrations of this letter are taken, describes the horrors of their life in the mines. For a long time women were used in this way in England and Scotland, and it was not until about twenty-five years ago that parliament passed an act keeping them out.

Children are employed in the Belgium mines today. The English and Scotch used them for years. They were taken into the mines at seven eight and nine years of age, and were kept there until they grew up. The English coal veins are very thin and the tunnels were not more than a yard high. These children were used as beasts of burden. They were harnessed to little carts filled with coal, and had to crawl along on all fours with bells about their waists and chains between their legs dragging the coal carts to the surface. Women became deformed by this work. They were dressed in trousers and shirts like men. They learned to fight and swear like the men and became bad characters. At the age of fifty they were usually worn out. In Scotland young women were employed to carry the coal on their backs out of the mines. They dragged the coal to the foot of the ladders and then loaded it on their backs, holding it there by a strap around the forehead while they climbed up the ladders to get it to the surface. They worked from twelve to fourteen hours a day, and would do work, it is said, which the men would not do, tramping through the water with their loads of coal. According to law women cannot be employed in our mines.

Boys, however, have been largely used. They drive the mules, and in the anthracite regions they pick over the coal, taking the slate and refuse out of it. They get from 50 to 60 cents a day for bending over the dusty coal, roasting in the summer and almost freezing in the winter. They are frequently hurt, though it is by no means as bad with

our children as it was with those of Europe a few years ago, when in one investigation it was stated: "That they seldom slept with a whole skin, and that their backs were cut with knocking against the roof and sides of the tunnels, and that the walking in the water covered their feet with festering sores."

Have you ever been down in a coal mine? If so you can appreciate some of the dangers of mining. A coal mine is like a great catacomb. It is a city under ground, the walls of which in many cases are upheld by timbers. Now and then you come to rooms out of which the coal has been cut. The coal is taken down with blasting powder, and there is danger of the wall falling and of the miners being crushed.

There is also danger from fire damp, or the union of the gases of the mine brought together by the light from a lamp or candle. This causes a great explosion. It comes like a stroke of lightning, and with a clap of thunder. As the explosion occurs a roaring whirlwind of flame goes through the tunnels, pulling down the timbers and caving in the walls. It burns everything within reach. Miners are blinded, scorched and sometimes burned to cinders. Hundreds have often been killed at a time by such explosions, and by the flood of carbonic acid gas which follows them. The statistics show that even in the United States one miner is killed for every hundred thousand tons of coal mined, and those who are injured number many times this proportion.

Frank G. Carpenter

Nitric acid caused the death of Ah Lem, a Chinaman, in the employ of the San Francisco Chemical Works, at Flamingo's Point, near West Berkeley, Cal., on Monday night. The acid splashed in his face, and before its fatal progress could be stopped it had almost eaten away his features. Ah Lem worked as a barrow-runner to the company's nitro department. His duty was to wheel a carboy of the acid to the mixing room, where it was turned into a new solution. He was allowed a helper to load and unload the carboys. Tuesday morning Lem's helper was engaged elsewhere and he sought to place a carboy on his barrow without assistance. The orifice of the large glass receptacle was not closed, and as he struggled to raise it to the truck the acid splashed through the opening, bathing the man's face. He fell to the ground and writhed in agony. Neighboring workmen splashed water on his face, seeking to stop the action of the poisonous fluid, but without effect. Superintendent R. H. Trenouth then attempted to neutralize the acid by applying soda water and bicarbonate of soda and bandaged the sufferer's face. Lem's friends decided to take him to a Chinese doctor in San Francisco, but failed to catch their train. A stock of drugs was then secured from the Chinese camp at the Judon power works and a soothing lotion applied to his face with a feather. The application relieved the pain but did not neutralize the acid, and with his face burned and half eaten away Ah Lem died at 9 o'clock Tuesday night.