

of packing and oil, and, astounding as it may seem, in its internal construction it has neither nut nor bolt.

THE COLLIER'S CALLING.

Although the collier's calling is a dangerous and laborious one, it is not, in the ordinary sense, unhealthy. According to the Inspector of Mines for the Liverpool district, "The occupation of the coal miner is, generally speaking, a healthy one. There are, no doubt, times and places when the atmosphere he has to labor in might be cooler and purer, mechanical ventilation there are very few mines of but with the now almost universal adoption of which he would suffer actual discomfort or risk of injury to his health. As compared with occupations above ground, where the worker is exposed to all kinds of weather, the miner's life has its compensations." It needs them.

SPARKS FROM LOCOMOTIVES.

If the latest invention for destroying sparks from locomotives be as effective as those interested in it hope, it must prove of great importance to the railway and agricultural communities. Innumerable attempts have been made to devise such a mechanism, but while many have managed to "kill" the sparks they have also had the effect of diminishing draught. The damage done by sparks in setting fire to stacks and other property along the railroad is so considerable that, according to a New Zealand paper, the Government six years ago offered a prize of 3,000 pounds for a spark arrester, so that their settlers along the railway lines might no longer have to complain of crops being fired. The prize was not won. It might still be worth enquiring about.

COAL MORE THAN RUBIES.

To his class in Glasgow University, Professor Liversidge a lecture, taking as his subject, "The Rise and Progress of the Mining Industry." We give a synopsis of the lecture:

The importance of mining, he said, was shown by the fact that when we wished to divide human history into a few periods we turned to the metals as the standards by which to measure man's industrial development. A large number of mining enterprises were commercial failures, and this applied with especial force in the case of mines other than coal. There were to-day between 500 and 600 lead mines in the country, of which scarcely fifty were paying a profit, and there were 104 copper mines making returns of ore, of which he did not think more than a dozen were worked profitably. Indeed, he thought they might safely assume that the proportion of unprofitable mines under those heads was about ten to one. They would, he thought, agree with him that mining enterprise need not be the risky business it was, and that the disproportionals number of unsuccessful mines

might be considerably reduced. Many such had been opened in strata where there existed little or no prospect of success. There were also mines that owed their abandonment to want of sufficient capital; while the failure of others, on the other hand, was due to overloading the mine with unnecessary and unproductive capital. Professor Latham went on to deal especially with the mining of coal, pointing out that all other branches of the mining industry in the United Kingdom were surely diminishing in importance, while coal was ever advancing. Not only as a means of direct employment did it overshadow all the rest, but probably it was no exaggeration to say that, in point of monetary value of the raw product, coal monopolised near upon nine-tenths of the mineral products of the United Kingdom. The professor proceeded to describe the gradual growth in the appreciation of the value of coal, and said that now, if all the mines of the precious metals were closed at once—if gold and silver were no longer obtainable for our use—society, after certain evolutions and adjustments in adopting other representatives of value, would go on as at present, whereas, let civilized communities be deprived of their coal, and it was difficult to see how they would hold together as before. Dealing with the proportions used in various industries, the lecturer pointed out that 40 million tons were employed for domestic purposes, 40 million tons were exported, and 70 million tons were used in the iron and steel works. It was a fair estimate that nearly one-half of all the coal produced in the United Kingdom, representing employment for 450,000 colliery workers, was absolutely dependent upon foreign trade. That meant that if from any cause our foreign trade ceased, the means of employment for our colliery workers would be reduced by one-half. Not only would interference with foreign trade diminish employment at collieries to that alarming extent, but it would have a very much further reaching effect and would paralyse all our leading industries. Britain's productions, Britain's sales, Britain's means of employment, Britain's wage-earning and wage-spending power would be diminished nearly one-half for the whole of her people. Such a condition of things meant absolute industrial ruin. Professor Latham afterwards described and illustrated the various means employed from early times up to the present day in coal mining; and showed how the loss of life had been reduced by the introduction of improved machinery, ventilation, and efficient inspection. Addressing himself to those who were entering upon the career of a mining engineer, he said that no vocation could be more useful, more worthy, or more honourable. There was none which they could follow with more advantage to others, or with greater moral or material benefit to themselves. The cry that the profession of mining engineering was overcrowded

Continued on page 20.