

the vaunted thoroughness and efficiency of German methods, the average output of coal per man in Germany is only 300 tons, as compared with 760 tons in America." It is also typical of the self-depreciating fad of the Englishman to infer, as the Times writer infers, that the science of coal extraction is less understood in Great Britain than in the United States. It has not yet become necessary in the United States—or in Canada, for that matter—to work thin and inferior coal-seams, such as are being so largely worked both in Great Britain and on the Continent of Europe. Such luxuries as "payment on a screened coal basis," and "blasting out of the solid," cannot be afforded in old-fashioned Europe, and the number of tons of coal produced per man employed is not always a true criterion of efficiency. The condition of the coal produced is an important consideration, and one often overlooked in the desire for tonnage records.—F. W. G.

## AVOIDABLE FIRES IN COAL MINES

The following extract from the Engineering Supplement of the London Times for October last should be of interest to practical mining men, because of its excellent common sense. The excerpt, which is headed "Plain Causes," is as follows:

"The circumstances attending the fire which occurred last month in the downcast shaft of the Exhall Colliery afford another illustration of the danger which may at any time result from obvious and easily avoidable causes. In this instance fourteen men lost their lives as a consequence of the overturning of a naked paraffin flare lamp carried by a man who was in the act of oiling some machinery in a shaft containing pitch-pine cage conductors. Although in the case of a new shaft the adoption of wooden guides is objectionable on account of their inflammability, it may be unreasonable, on the ground of cost, to require the substitution of steel guides for wooden guides in small or old collieries. At the same time, where wooden guides are in use, it seems to be obvious that extra precaution should be taken against accident by fire, and especially that the use of flare lamps in the shaft should be absolutely forbidden. Authorities, both legislative and administrative, have a peculiar faculty of neglecting the simple and favoring the recondite; and it is only by repeated lessons of a nature similar to that afforded by the Exhall disaster that they can be induced to give due consideration to plain facts. A striking illustration of this contention was to be found, until comparatively recently, in the legal attitude adopted in regard to persons employed below ground in coal mines having lucifer matches in their possession, such persons on conviction being usually let off with a fine, although the potential danger to hundreds of lives involved by such an offence is apparent to the meanest capacity. There are even now probably many simple causes of danger existing in coal mines, and if the authorities would condescend to collect, investigate, and remove them, they would not only considerably reduce the annual tale of accident and misadven-

ture, but they would also, and at the same time, clear the ground for their more abstruse researches."

It is most astonishing how the tradition of the naked light in coal mines still persists. The great bulk of all coal mine explosions and fires are traceable to the presence of a naked light. It would be a different matter if naked lights could not be avoided. A naked light coal mine to-day is an anachronism, as obsolete as the "steel mill" method of illumination, or ventilation by a furnace fire. A worse evil than the naked light mine even is the "mixed light" mine, where safety lamps are used in certain sections classed as gassy, and naked lights used in the other parts of the mine. The use of flare lamps around stables and shaft bottoms has caused fires innumerable, and yet this sort of thing persists. Elaborate laboratory experiments on the explosibility of coal-dust, and analysis of mine air, the composition of explosives and many other nice scientific problems that have come into great prominence in recent years, have led to important results and increased safety in coal mines, but all this recondite research is of little avail if the dictates of ordinary common sense are neglected. Many a man will use a naked light in a coal mine without thinking very much about it, who would hesitate to use a match or a lighted candle in his own attic. Nothing has had, or can have, so deterrent an effect on the occurrence of mine fires and explosions as the absolute abolition of naked lights underground. Without discussing the comparative merits of oil safety lamps and electric lamps, it may be stated that both oil and electric safety lamps have been brought to a state of great efficiency, and that adequate illumination is obtainable with more or less complete safety in use. There is to-day no excuse for the exposure of a naked flame in a coal mine.

The advantage of using a large volume of air in mine workings is seen in the results obtained at the Morro Velho mine of the St. John Del Rey Mining Company. In the end of a tunnel driven at a depth of over one mile below the adit level, the temperature was 105°, but, on account of the large volume of air passing, the men did not seem to be much affected. It is expected, however, that artificial cooling of the air will be resorted to.

The prosperity of the aluminum industry is indicated by the statement that production is now nearly double that of a year ago and that the Aluminum Company of America is now expending \$20,000,000 in increasing plant. This company's success has resulted largely from the utilization of cheap power.

In Canada a subsidiary company operating a plant at Shawenegan Falls, Quebec, is one of the largest producers of aluminum. The great demand for this metal continues to increase in spite of the rapid advancement of price from 20 cents to around 60 cents per pound. With so many available water powers Canada stands a good chance of becoming a still greater factor in the aluminum industry.