

metre of air, therefore, took up about 20 grams of water, if it left the mine saturated with aqueous vapour; and the total quantity of air, about 2,200 cubic meters, absorbed from the mine 45 kg. of water per minute, and therefore in 36 hours about 95 cubic meters of water were absorbed. Under these conditions the mine would be quite dried up on Monday morning. The original fire-damp explosion was thus extended by the coal dust and caused the loss of 150 lives. In order to avoid such accidents in the future, the mines are now watered during the night after they have been idle, and before the descent of the ordinary shift of miners.

The total exposed area of the seven important coal fields of England and Wales is 2,786 square miles. There are in the various fields 190 seams of coal of more than 2 ft. in thickness, at a less depth than 4,000 feet. These beds represent a total thickness of 666 feet, an average of about 3 feet 6 inches per seam. According to the recent report by the Royal Coal Commission, the amount of fuel still available in the above areas excluding all seams of less than two feet in thickness and more than 4,000 feet deep, is 79,000,000,000 tons. The thinner and deeper seams are estimated to contain an additional 70,000,000,000 tons. According to this estimate, and basing calculations on the present annual rate of extraction, the combined coal resources of Great Britain should last about 600 years.

#### THE THRIFTY GERMAN.

The Berlin correspondent of the London Daily Mail gives some interesting figures showing "how people of small means have to struggle for existence in modern Germany". These figures are to be found in a publication just issued by the Imperial Statistical Office, which a year ago caused 800 families in different parts of the Empire to begin keeping a systematic account of their incomes and disbursements. Every family received an account book in which it was requested to keep an itemized record of money spent on food, clothing, fuel, medical attention, presents, education, amusements, etc. A teacher and his wife, without children, whose income was £145, contrived to save £6. Another teacher and his wife, also childless, earned £160 and spent £171. Their deficit was caused by them spending £25 more for food and £8 more for entertainment than the other teacher. A married couple with three children, the father being a brewery workman, earned £88 and saved £7 10s. The family spent only £33 10s. on food. It is added that in order to accomplish the above result the most spartan economy was required, in most cases not a single farthing being spent unnecessarily. The statistics attract especial interest in view of the new internal revenue taxes on various commodities which will shortly come into effect, making articles such as tobacco, cigars, cigarettes, coffee, tea, sugar, matches, beer, cognac, and gasmantles dearer. The Westminster Gazette thinks these figures are effective ammunition with which to meet the contention of the tariff reformers that a protective tariff will not increase the cost of living.

#### MINING AND QUARRING STATISTICS.

A volume of statistics on mining and quarrying in various parts of the world, issued as a Blue Book, states that the number of persons engaged in the industries at home and abroad in 1907—statistics for that year not having been received until the present year—was well advanced—exceeded 5½ millions. Of this total roughly speaking, nearly one-fifth were employed in the United Kingdom and more than one-third in the British Empire, more than half of the total number were employed in getting coal alone, Great Britain employing over 925,000, the United States 680,000, Germany 611,000, France 183,000, Russia 145,000, Belgium 142,000, Austria 126,000, and India 112,000. The total amount of coal produced was 1,117 million tons, the value of which is estimated at more than 418 million pounds sterling. The quantity and value, compared with 1906, shows an increase of 104 million tons and 74 million pounds sterling, respectively. Gold shows an increase of 16,096 kilograms, the total output being 614,732 kilograms, (19,764,078 ounces) of which the value is estimated at nearly 84 millions sterling. The British Empire supplied nearly 61 per cent. of the output, Australia contributing 16 per cent., the Transvaal more than 32½ per cent., and Canada, India, New Zealand, and Rhodesia, combined more than 9½ per cent. of the total. The United States contributed 22 per cent. In the case of iron the United States with an output of over 26 million tons is considerably ahead of any other country. The German Empire, with 7½ million tons, Great Britain nearly 5½ million tons, and Spain, with nearly 4½ million tons come next. The total value of the minerals and metals raised throughout the world in 1907 is roughly estimated at 935 millions sterling.

#### CHANGED MINING CONDITIONS.

Mr. J. R. Wilkinson, in his inaugural address to the Yorkshire Branch of the National Association of Colliery Managers, remarked that, in reflecting upon his earliest recollections of mines, mining, mining appliances, and mining men, and comparing them with the same to day, he saw very great changes. Mines considered extensive and outputs of coal large at that time were thought very ordinary now. In these days large and powerful combines were formed, extensive areas of unworked coal secured, and arrangements made for working out the coal in the least possible time. Wider shafts were sunk to greater depths, and appliances were put down for raising and dealing with outputs of coal unthought of by their grandfathers. The ventilating of mines had become a science in itself, and mechanical ventilation had so far taken the place of furnace ventilation that in up-to-date mines the furnace was becoming a thing of the past. The lighting of mines had also undergone changes quite as great. The Davy and Stephenson lamps, quite common forty years ago, were now obsolete, and others had taken their place which would with safety resist currents from six to ten times more than the Davy and Stephenson, and at the same time gave two or three times the light. These two improvements alone had enabled them to fight with some measure of success one of the greatest sources of danger met with in mines—fire damp—and at the same time had rendered possible the working of areas of coal from fiery seams and at greater depths from the same shaft that would have been impossible without them.