

With two men, under favorable circumstances, the machine in question would cut sixty yards in one shift of eight hours, but if another man was sent to cut away the debris, a greater length could be cut. The machine was worked by means of compressed air, and the number of shots had been reduced in a face 570 yards long from thirty per day to twelve. It was hoped by still further increasing the cut to still further dispense with them, and the total cost of getting the coal was 18. 7d. per ton. The number of men, too, was reduced, 120 being able to do the work of 173.

Tyrellania has been suggested as a most appropriate designation for that section of north-western Canada, recently the scene of some exploration by Mr. J. B. Tyrell and about which there has been so much nauseating flatulency in the columns of the daily press. In glancing at the mass of inspired puffing and free advertisement of the doings of this modern Gulliver one cannot restrain a smile at the utter insignificance of the work done both in its value to the country, and in comparison with the sterling achievements of many of the members of the present staff of our Geological Survey. Moreover it must occur to most that \$7,000 out of the total annual appropriation of \$50,000 for the Survey's work is a somewhat heavy expenditure to squander on a section of country entirely beyond the economic uses of the people for many generations to come. The country is thirsting for knowledge of its resources much nearer at home and extravagant junketings of this kind should be tabooed.

The holders of the MacArthur-Forrest cyanide process patents in South Africa the African Gold Recovery Company have had a very good innings on the Rand, but now trouble is looming ahead. According to the *South African Mining Journal*, it is currently reported that the committee which has for some time past been privately engaged in investigating the validity of the African Gold Recovery Company's patents has come to the conclusion, after patient investigation of all the evidence available, that the patents could be opposed with good prospect of success in a Court of law. An ultimatum will probably be shortly presented to the company demanding substantial reductions in the royalties at present paid, and should the demand be refused, immediate litigation will probably result. What will be the consequence of such action it is impossible at present to predict. One thing, however, is certain, if change is to result, it will certainly not be in the direction of increased charges for the use of the patents, seeing that competition with other chemical processes as well as with improved appliances for the extraction of gold by concentration will have shortly to be faced. In this important item amongst the total cost of gold mining and recovery, there is, therefore, good prospect of reductions being effected, which, with those daily being brought about as a result of recent lowering of price of coal and dynamite, should certainly exert an

appreciable influence during the coming year in increasing the profits earned throughout the district.

Mention is made in a recent issue of the *Honduras Mining Journal*, among other things, of a somewhat curious discovery, bearing not only on the theory that the Aztecs did not smelt their gold ores, but on the immense antiquity of gold mining as a Mexican industry, which has lately been made in the State of Chiapas. For a long time the superintendent of the great Santa Fé copper mine was perfectly satisfied that the mine was absolutely virgin, since none of the immense masses of copper ore cropping out in all directions showed the slightest trace of having been touched. True, there was one shallow hole near by, which, however, might easily have been sunk by some wandering prospector during the last few years. Lately, however, it was found necessary to grade out a hillside some 200 yards from the mine. The hill was densely wooded, but, after felling the timber and excavating two feet of black vegetable mould, traces of ancient workings were discovered resulting in over 50 metres of an ancient dump being unearthed. This dump was found to contain blocks of rich gold bearing copper ore, thrown away as useless. The shaft of an old mine was also found. The whole workings appeared to be entirely separate from the Santa Fé mine and in a lower formation. A further discovery was made on the Victoria mine, half a mile to the south-west of the Santa Fé mine. Here also there was not the slightest trace of any human being having worked on the mountain, not a dump, not a loose stone, and the ground covered with immense forest trees. A tunnel was being driven to crosscut the ore body, and had gone through over 70 ft. of ore, when suddenly an ancient working is blasted into. There are no traces in the neighborhood of any patios, dumps, arrastras, or furnaces, no trace of human habitation beyond an occasional idol found in the caves or hollows in the Santa Fé mine. The small broken grinding stones which might well have been used for maize, were found, but where was the free milling gold ore treated which came from the mines that must have been extensively worked, judging by the extent of the Santa Fé dumps and of the Victoria workings?

The deposits of domestic gold bullion at the mints and assay offices of the United States during the year 1892 aggregated \$32,367,850, and the deposits for the calendar year 1893, \$36,056,300, showing a gain in the deposits of gold of domestic production in 1893 over that of 1892 of \$3,688,450. It is now estimated by the bureau of the mint, says the *Wall Street Daily News*, that when the final figures are received covering the statistics of the production of gold in the United States for the calendar year 1893, an increase over that of 1892 of about \$4,000,000 will be shown. The largest increase in any single state during the year was in Colorado, and which approximates \$2,000,000. The only state in which a decrease is shown is

Nevada, which shows a falling off in 1893 as compared with 1892 of about \$575,000. The present indications are that the production of gold for the current calendar year will largely exceed that of 1893. The larger part of the increase will be from the mines of Colorado.

A report by Mr. Henry Hall, Inspector of Mines, has been presented, in the form of a blue book, to the Royal Commission on Explosions from Coal Dust in Mines, giving the result of a series of experiments made with coal dust collected from the principal seams in various mining districts. Altogether fifty-two samples were received, and, with the exception of four or five, all were tested in a mine shaft placed at Mr. Hall's disposal by the proprietors of the White Moss Colliery, Skelmersdale, a wrought iron cannon being used for the gunpowder shots. Mr. Hall says that a careful examination of the results warrants the following conclusions: (1) That the flame from a blowing out gunpowder shot in the presence of dry coal dust always ignites more or less of such dust, and so increases the burning and charring effects of the shot; (2) that when a large flame, such as that of a blowing out gunpowder shot, or the flame from the ignition of a small quantity of fire damp, traverses an atmosphere containing a very moderate quantity of dry coal dust, the dusty atmosphere will explode with great violence, and the explosion will continue on and pass throughout any length of such atmosphere, its violence and force increasing as it progresses; (3) that coal dust from several seams in different districts, notably those from Glanmorgan, Monmouth, Durham, Lancashire, Yorkshire and Scotland, are almost as sensitive to explosion as gunpowder itself; (4) that coal dust is, as a rule, more sensitive to explosion in proportion to its high quality and freedom from impurities; (5) that a ready supply of oxygen, such as is supplied by a brisk ventilation, has the effect of making coal dust explosions more probable and more severe; (6) that certain "high explosives" are incapable of igniting or exploding coal dust. Of the whole of the dusts tested, that from the Albion Colliery, Glanmorgan (Aberdale or Merthyr 4 ft. seam or upper 4 ft.), excelled all others in violence and sensitiveness to explosion, and this seam has the worst history of any in the kingdom, upwards of 1,600 persons having been killed in it by explosions since the year 1845. It was also evident from the experiments that the higher the quality of the coal seam the more liability there is to explosions of dust. With regard to precautionary measures to be taken in the face of these facts, Mr. Hall urges the total abolition of gunpowder from coal mines and the substitution of certain "high explosives." Many of the largest firms in the country have, he says, already of their own motion taken this step.

A locomotive made by a Manchester firm, Messrs. Beyer, Peacock & Co., has been utilised for the first time on the Argentine railways for the purpose of testing the value of petroleum oil as fuel in the place of coal. A tank engine was