the Shropshire coalfield, and during that time he has been surgeon to two collieries; and in an interesting paper on the health of the colliers, he says he has never seen a single case of cancerous disease in a collier who was working in the pits. "Moreover," he says, "an examination of the books of the district registrar shows that of all persons whose deaths are registered as due to malignant disease during the past thirty years, only two are described as 'coal miners.' Of these, one I know positively had long retired from the arduous occupation of coal-getting, and had for many years followed the more gentlemanly occupation of rat-catching. The other died in the workhouse, and had not worked in the pit for some time. It should be borne in mind that in this same locality cancer is very common, and is often seen among the furnacemen, moulders, ironworkers, and general labourers." Another practitioner living in the same district is also unable to recall the case of any collier suffering from cancer. The explanation lies partly, Mr. Webb thinks, in the habitual cleanliness of the collier, who "tubs" daily as soon as he comes home from the pits, and partly in the fact that his habits rarely lead him to drink water from casual sources.

The Use of Electric Machinery in Coal Mining.—By Mr. L. L. Brande. This paper is highly characteristic of the innovations of the time we live in, and the claims of the writer strongly emphasize the use of electric appliances in all the operations in mines where power is applied to do work. He claims that transmitted electrical energy secures greater efficiency and economy and thereby considerably enhances the profits of the mine operators.

The strong points in the paper may be summarized as follows:

First—Seeing that the loss by transmission of the current is so small, it may be neglected in the gross result, and therefore the power may be applied through a motor directly at the points where it is wanted, and that may be for pumping, drilling, coal cutting, and hauling, in the most distant nooks of the mine.

Second—As electrical transmission has advanced beyond the speculative and experimental period, its reliability and relative efficiency and economy is now undoubted, and stands within the compass of numerical values that can be calculated with certainty.

Third—As the principles of action of electric plants are now so well understood, the generators, cables and motors are constructed to secure durability with few repairs.

Fourth—Only one prime source of power is required to generate the current for lighting and for the multifarious motors that are located just where the work is required to be done.

Fifth—For undercutting coal the electric cutter does the work in one-half the time, and effects a saving of from 10 to 12 cents a ton.

Sixth—Mr. Brande gives his experience of eight months at the Nos. 2 and 3 mines of the Essen Coal Co., Hazletine, Pa., and the plant at these mines consists entirely of "Independent" electric machinery. The prime steam power is equal to 200 h. p. and these engines are used to drive three 150 kilowatt generators. There is always one engine and one generator kept in reserve. The three generators have had nothing done to them since last May save cleaning the commutator occasionally, and the oil in the bearings has been changed only once.

Seventh—Two electric locomotives are used for haulage, and each of them is capable of hauling 1,000 tons per day. They are giving excellent satisfaction. On a nearly level track the longest train hauled in No. 3 mine was 64 bank cars, each carrying from 25 to 30 cwt. In No. 2 mine the longest train was 38 bank cars, the grade varying from 1 per cent. to 2 per cent. The lengths of the hauls were 3,600 and 4,200 ft.

Eighth—All the important partings and tipples of these mines are furnished with the electric light, and each motor has a headlight.

In conclusion, Mr. Brande predicts: "That the time will soon come when the price of coal will be based on the output of machine mines," and then operators will find their interests best served by using, wherever and whenever they can, these labor and time-saving and profit-making appliances.

Methods of Closing Upcast Shafts.—In a recent paper before the Federated Institute of M. and M. E., Mr. A. Reid said:— "The use of the fan pit as a winding shaft was not by any means commendable, but there were many cases where the demand for increased output could only be met by gearing the upcast shaft for winding purposes. In the case of the Ffrwd Collieries, where the shafts had been sunk of insufficient dimensions to allow two cages passing in the shaft, a cage was run in each pit with the headgears in tandem. In these and similar cases the obstruction of the cage in the fan pit had to be tolerated, and a method of arrangement for the pit top became essential. The first method which suggested itself was that of completely boxing in the top of the fan pit in an air-tight chamber, with separation doors, or, again, with automatic sliding doors, which were an improvement, though at the Ffrwd collieries—iron doors having to be employed—excessive wear was caused to the winding rope, and when the doors were open there was a very heavy leakage, causing a perceptible lull in the workings. These plans had been rejected in favor of one designed by himself, which had been working most successfully for two years. A wrought-iron casing fitting the cage with a little clearance all around was built into the pit, and from the bottom of the casing to the landing plates were rendered air-tight. The top of the shaft, flush with the landing plates, was covered with a light wooden door; the joint was made of indiarubber, and the winding rope worked through a hole in the centre. Enveloping the capping of the winding rope was a light wrought iron pipe, 3 ft. long and 6 in. internal diameter, with flanges at both ends. This was carried by a block of timber 1 ft. 3 in. square and 6 in. deep, bolted to the lower flanges of the pipe, which rode on the lowest pair of clamps of the winding rope, which were neatly tooled to prevent injury to the rope, and on the top flange of the pipe was fixed an indiarubber buffer, 15 in. diameter by 6 in. thick. When the top cover of the fan entered the casing the pull of the fan was taken off the top door, the winding rope in lifting the light wooden door received no shock, while the cage acted as a door, closing the door above the fan drift. There was no loss by leakage, and the ventilating current was maintained constant while the winding went on. He claimed for the arrangement the maximum of convenience with the minimum of cost.

Bruce Carruthers' Scholarship.—Gold amalgamators are reminded that the Bruce Carruthers' Scholarship in connection with the School of Mining, Kingston, will be awarded in May. The Scholarship, which is of a value of $200 per annum, is intended to afford one who has had experience in amalgamating the precious metals an opportunity for acquiring education in mining engineering. The conditions of this award will be made known on application to the Director of the School. Here is an opportunity for some deserving mill-man in Nova Scotia.

The Products from a Ton of Coal.—From a ton of ordinary gas or bituminous coal may be produced 140 lb. of coal tar, in addition to 1,500 lb. of coke, and 20 gallons of ammonia water. By destructive distillation the tar will yield 69.6 lb. pitch, 17 lb. creosote, .14 lb. heavy oils, 9.5 lb. naphtha yellow, 6.3 lb. napthalene, 4.75 lb. naphthol, 2.25 lb alizarin, 2.4 lb. solvent naphtha, 1.5 lb. phenol, 1.2 lb. aurine, 1.1 lb. benzine, 1.1 lb. analine, 0.77 lb. toluidine, 0.46 lb. anthracene, and 0.9 lb. toluene. From the latter is obtained saccharine, which is a substance 230 times sweeter than the best cane-sugar, one part of it giving a very sweet taste to 1,000 parts of water.

Mine Accidents in Great Britain.—A summary of the statistics relating to the fatal accidents and deaths which occurred at the mines and quarries of the United Kingdom during 1895 has been issued this week. It appears that in the past year there were 859 separate fatal accidents at mines classed under the Coal Mines Regulation Act, as compared with 813 in 1894; in 1895 the total number of lives lost was 1,033, as compared with 1,127 in 1894. At mines classed under the Metalliferous Mines Act there were last year 45 separate fatal accidents and 53 lives lost, as compared with 39 accidents and 46 lives lost in 1894. In 1895 the accidents at quarries numbered 96, each accident resulting in the loss of one life.

One of the many interesting things in the recently issued annual report of Mr. Douglas Stewart, Dominion Inspector of Penitentiaries, is the statement that among the 520 convicts in Kingston Penitentiary there is not a printer. But it is not surprising. Printers and all others connected with the production of newspapers are such just and righteous men that one of them, if placed among the convicts in Kingston or any other penitentiary, would be immeasurably more out of place than a fish in a bird-cage.