The total number of mines in the district in 1902 was 241; the total number of employés 4,268, and the total number of tons of coal produced was 2,413,463. For the year 1903 the total number of mines in the district was 243; the total number of employés 4,363 and the total output of coal 2,708,350 tons. Hancock and Schuyler counties show a decrease of 8,383 tons, leaving a net increase of 294,887 tons.

LITIGATION.

April 6, 1903, I entered suit against Edward Little, Peoria, for operating his Hilliard No. 1 mine without a certificated mine manager. The court found him guilty as charged, placing his fine at $50 and costs, which he paid.

I also secured an injunction closing Little's Hilliard No. 2 mine, until such time when he would comply with my recommendations, to place the mine in lawful condition. This injunction was in force until June 1, 1903.

DOGS EMPLOYED IN MINES FOR HAULING CARS.

In McDonough county mines 31 dogs are employed for drawing empty and loaded cars of coal to and from the mines, to the bottom of the shaft or to the mouth of the drifts.

On one of my visits to the mine of Rippetoe and Rundle, at Colchester, I was very much interested in observing the intelligence exhibited by one of these animals. The driver with his dog was returning from the bottom of the shaft, the dog drawing an empty car, on arriving at the summit of the hill, the dog, without any instruction, jumped into the car and rode with the driver down the incline to the level below, arriving at the bottom the dog jumped out of the car and pulled it up the grade on the opposite side to the working face.

I am unable to classify the different kinds of dogs that are in use at these mines. Under the head of haulage in the mines (page 127) is shown a mastif hitched to a car of coal, which it has just drawn out of the mine.

I do not esteem so highly, the value of dogs, in consideration of their mere usefulness to the miner or to the operator, as I do other domestic animals: the horse, pony and mule; yet the dog to a greater degree beyond that of any other animal, has become the humble friend and companion of man, seeming actually to have knowledge to be delighted with the joys, or, to sympathize in the sorrows, of his master. On this account it is, that he is alike "The pampered minion of royalty and half starved partaker of the beggar's crust."

POWDER EXPLOSION AT ATHENS.

In company with Richard Newsam, president of the State Mining Board, G. R. Charlton, Menard county mine inspector, Thomas Hannah, former county mine inspector, with John Garrity, mine manager and Moses Cooper, mine examiner of the Athens Coal company's mine, I made an inspection of the mine, operated by the Athens Coal Mining company, in which six miners

lost their lives on the morning of March 23, 1903, by an explosion of powder. Mr. Newsam and myself were the first to arrive at the face of the workings, where the men were killed.

Our investigation there showed that six shots had been fired in the tenth south entry, also in a cross-cut, which was being made between the ninth and tenth south entries; the latter from the tenth south entry side. Three shots had been fired in the tenth south entry and three in the cross-cut. One shot in the cross-cut had blown through into the ninth south entry.

From the testimony given by Mr. Westton it was learned that this particular shot in the cross cut had been prepared on Friday, March 20, three days previous to the explosion; that he, Westton, had assisted Fred Impkey, one of the killed, to charge and tamp this shot, Friday night, and had left Impkey to fire it, and he supposed Impkey did fire it at that time. This shot in the cross cut had been drilled to within a few inches of being through into the ninth south entry; the length of the drill hole was 7½ feet; the shot did not blow the tamping, and enabled us to measure the length of the hole, which had contained powder, also to measure the length of the tamping, and make an estimate of the amount of powder which had been used in preparing this shot.

As stated the drill hole was 7½ feet long; there was 16 inches of tamping left in the holes, this we drilled out, leaving 6 feet of the drill hole, which had been filled with blasting powder.

Allowing that 1 cubic foot of powder will weigh 62.5 pounds, we would have contained in this drill hole, which was 6 feet in length and 2¾ inches in diameter, 14.2 pounds of blasting powder. Assuming the foregoing as a basis in estimating the amount of powder used in the five shots that were fired the morning of the explosion, we would have in "dead drill holes" alone 12½ feet. The cubical contents of these drill holes would be 825 cubic inche, and would contain 29 pounds of blasting powder.

However, taking into consideratian the length of the drill holes as measured, it was found that the drill holes on the left hand rib of the tenth south entry was 6½ feet long, and that the one on the right hand rib of the same entry was 7 feet long, while the one in the center of the rib showed 3½ feet of dead hole. The drill hole on the left hand rib of the cross-cut was 6½ feet long, and the one in the center 2½ feet dead. Therefore the conclusion is reached, after very careful measurements and calculations, that there must have been fully one and one-half kegs or 37 pounds of powder used and exploded in firing these five shots.

In addition to the powder exploded in these shots, as described, a portion of a keg of powder had been left on the tenth south entry, about 70 feet from the face of the entry; this would increase the quantity to fully 50 pounds of powder exploded in the tenth south entry. This entry was only 7½ feet wide and 6 feet high; the cross-cut was 6½ feet wide and 6 feet high. There was of course a lack of room for the rapid expansion and dissipation of the heat produced by the firing of these tight shots. The force of the powder was expended in creating velocity and the velocity thus created put in motion the